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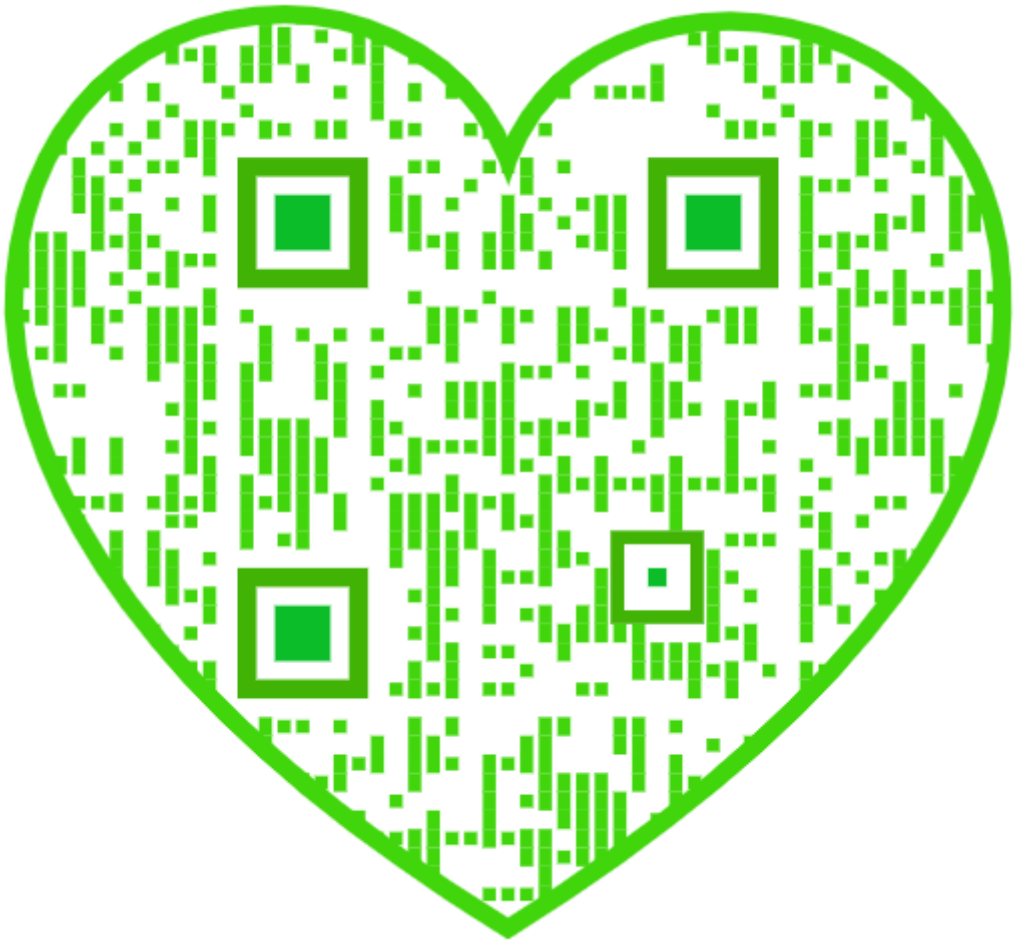

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THE ELECTRIC RANGE HANDBOOK

FOURTH EDITION
1921

New Addendum — Electrical Cooking Equipment in Restaurant Kitchens.....Page 202a

New Addendum—Relative Cost of Cooking by Electricity, Gas and Coal.....Page 209

"DO IT ELECTRICALLY"

Prepared and published by

The Society for Electrical Development, Inc.

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Dedicated

to the national conservation of fuel, food and labor and to greater efficiency and economy in the home.

Purpose of This Handbook

THIS HANDBOOK is a complete compilation of authentic electric range information and data. Its purpose is to guide and help solve the problems of central station managers who have realized the importance and profit of the range load and are contemplating the establishing of a rate and the merchandising of ranges.

A secondary purpose is to stimulate greater range activity in general, to show the way to more extensive sales to manufacturers, jobbers and contractor-dealers; also to central stations which have a cooking rate but have been retarded by different causes in installing ranges on their lines.

The information and recommendations are based on the valuable experiences and resultant policies of a number of the large and small central stations throughout the United States which have pioneered and placed the sales and service of the electric range on a definite, successful and profitable basis.

The text has been reviewed and approved by several range authorities and cannot be materially affected by changing conditions, as the fundamental methods of merchandising and maintaining this load builder will remain unchanged. The technical chapters are written in non-technical language for the benefit of the salesman and should be included in his range education. There are sales advantages in knowing essential facts about the central station system.

In this country today, more than 6,000 communities have electric cooking rates. Many of them are actively and steadily merchandising ranges through systematized business methods. The others merely have a rate, unsupported by sales effort. The fact that the electric range is a well-established and rapidly-

growing factor in central station development is proved by the overwhelming success of these progressive companies.

The electric range requires little additional equipment compared with the total plant and line investment. Its sale and maintenance are fundamentally simple. Its load in unquestionably desirable because of its large off-peak consumption. And it increases by more than 200% the revenue from the average home and is therefore the solution of the profitless lighting customer.

In other words, the electric range is the supreme domestic load builder. Not only does it offer the greatest possibilities of any undeveloped field today, but it is destined to be one of the largest revenue producers of the Electrical Industry.

So there is a need for a practical handbook covering all the problems in the building of a successful range load. And it is with this thought and object in mind that this publication is prepared and produced by The Society for Electrical Development.

The Society wishes to acknowledge indebtedness to the Central Station managers, range manufacturers and members of the N. E. L. A. Range Committee whose material was used in the compilation of this volume. Thanks is also due the Electrical World, Electrical Merchandising and the Electrical Review for photographs.

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CHAPTER I

FUNDAMENTAL FACTS

The Range Load

Development. Central station service is available today in 17,333 communities of the United States. More than 6,000 of these places have an electric cooking rate.

Wherever the electric range has been extensively and intensively merchandised it has provided one of the most desirable and profitable loads of the central station.

The principal advantages of the cooking load are but briefly outlined here. A more complete description and discussion will be found in other chapters.

Revenue. The electric range load increases the average revenue from the home by 200% to 250%, and transforms a little- or no-profit customer into a profitable one, and without increasing the consumer's household expenses.

The revenue is so large in comparison with the investment involved that central stations can afford and are justified in making a rate that is only slightly higher than the additional cost of generating the current.

The very limited revenue period of residence lines when used for lighting only, demands the intensive use of other devices; and the electric range is the best business for the small central station which has no industrial power load.

It is also a most promising device for the large central station which must cope with the growing problem of increasing gross earnings with little additional capital investment. See *Range Revenue*, page 18 and 19.

Investment. The range requires little new equipment if the system is not already overloaded.

The overload capacities of transformers and meters and the excellent diversity factor of a group of ranges greatly lessen the cost of new service equipment which at first thought, might seem necessary to handle the increased connected load.

Often the shifting of transformers from one installation to another saves the purchase of new ones. Therefore connections can often be made without appreciable increase in the investment.

The added expense of the extra meter reading, bookkeeping and the issuance, delivery and collection of bills is so small it need not be considered. See *Investment and Return*, page 54.

Load. The range is the chief domestic load builder—consuming from 300% to 500% more current than any other household device.

It is used *three* times a day—365 days in the year—Saturdays, Sundays, holidays; and it fills the week-day noon valleys between eleven-thirty and one o'clock.

The value of the range load is due to its large diversified daytime consumption of current which not only means an additional 8 to 10 hours' daily use of the residence district lines—which are practically idle for about 20 of the 24 hours—but the sale of thousands of kilowatt hours. The additional generating cost is small but the revenue is profitable.

It requires little increased station capacity and greatly raises

the load factor and therefore promotes the efficiency of the whole system. See *Characteristics of the Load*, page 55.

Other Advantages. Electric cookery ties residence customers more securely to a utility than does electric lighting because it makes them more dependent upon and more appreciative of central station service.

The electric range makes day service possible and immediately profitable in hundreds of small non-manufacturing communities. Thus it is a dependable beginning for an 18 or 24 hour service—and it paves the way for the appliance load.

Introducing electric ranges in its community shows that the central station is doing its part in the conservation of fuel, fuel transportation, food, labor and time and that it is taking another big step toward the economic and inevitable centralized production of cooking energy.

The establishing of a rate and the active sale of ranges not only gives a central station the valuable prestige of being in step with the wonderful electrical developments in this country, but it promotes good-will and creates the impression of stability and constructive progress which becomes a tangible asset for the utility when new bond issues and good-will propaganda are launched.

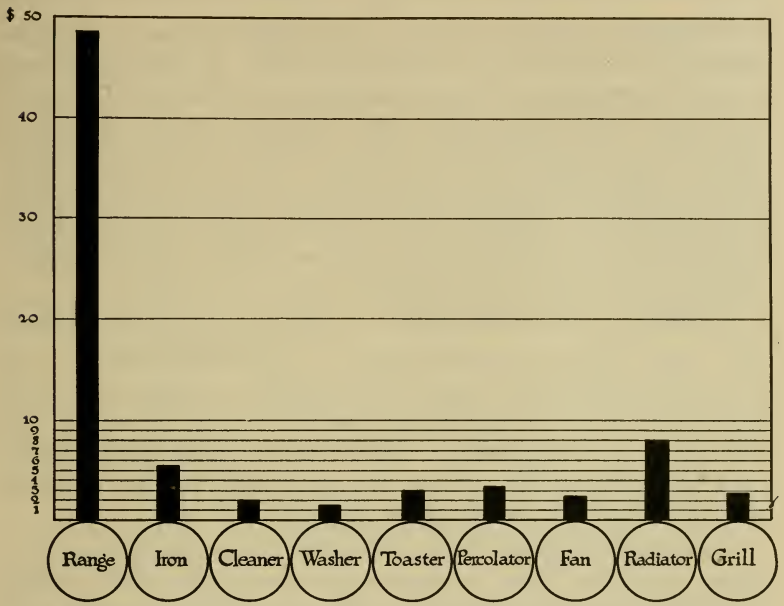
THE GREAT national demand of the day is for "conservation." The electric range can conserve more food, fuel and labor than any other household device. In the United States last year, 132,000,000 tons of coal were used for domestic purposes. Millions of tons could be saved if every home cooked electrically. The saving in the shrinkage of food would be enormous—likewise the saving in work and time because of the millions of people employed in preparing food.

Range Compared with Appliances

Based on Averages. The yearly revenue of the range proves it is the most profitable domestic device for the Electrical Industry. As all things should be judged by the law of averages, isolated facts, selected figures and individual opinions have been avoided and the following figures averaged from reports of a number of representative central stations. The rate of $.084 is the weighted average for electric light and $.035 the average cooking rate in the United States today.

Appliances	*Annual Kw-hr. Consumption*	*Rate*	*Annual Revenue*
RANGE	1,500	$.035	$52.50
Iron	67	.084	5.63
Cleaner	25	.084	2.10
Washer	20	.084	1.68
Toaster	37.5	.084	3.15
Percolator	42	.084	3.53
Fan	31	.084	2.60
Radiator	96	.084	8.06
Grill	34	.084	2.86
			$29.61
		With Range	52.50
			$82.11

Note that the total average revenue of *all* these popular household devices is less than $30 and that of the range alone is over $50. For an idea of the revenue being derived today, note that the gross revenue from the ranges on the lines of just 100 central stations (in the compilation in the back of the book) is over $2,500,000 a year.



This chart graphically illustrates the great difference between the annual revenue of the electric range as compared with the annual revenue of the popular household appliances.

Cooking Rates

General Discussion. By good salesmanship, the central station can secure range business even where high rates have been established. But such business will generally be confined to the wealthy class which usually has dinner at night. Thus will a portion of the load come on the peak. On the other hand, if lower rates justify the use of the range by all classes, the diversity factor is very favorable and the business becomes a valuable one.

While local conditions must determine the rate which is eco-

nomically wise in each instance, it should be borne in mind in deciding on a rate that a wide introduction of ranges will tend to distribute overhead charges over a longer period of the twenty-four hours. The returns which The Society for Electrical Development have received show that in many instances central stations which have started with a 5 cent rate have been so well pleased with the result of the business secured that they have lowered the rate to 4 or 3 cents and in some instances even lower, in order to get more of this desirable load on their lines.

In addition to the advisability of a low rate, there is the need for a rate that can be understood by the average person. In many rates which are based on the number of rooms, the area and demand are so complicated that they tend to create the impression of discrimination. While there is doubtless a defense for every system, the simpler the form that can be adopted the easier it will be for the Sales Department.

A three-step rate has been inaugurated by a number of companies, with the plan of using only one meter, thus saving expense in meter installation as well as in cost of reading and billing. The first step of 15 to 25 kw-hrs. is estimated to take care of the lighting service at regular rates; the second or intermediate, of the appliance load; the third, a very low rate, covers the range business. This rate while not as simple as some, has points that appeal to the public and are fair to the central station.

When a separate meter is used the Boston rate is excellent, 10 kw-hrs. at 10 cents (which insures a minimum of $1.00 a month), then 2 cents per kw-hr. for all in excess. A flat rate for the range in undesirable as it leads to an unreasonable use of current. One company reports an average consumption on flat rate of 4,800 kw-hrs. a year and only 1,200 kw-hrs. when meters are installed. On the other hand, a flat rate seems desirable when electricity is

used for water heating, the amount to depend on the size of the heating unit. The simultaneous use of range and heater may be avoided by the installation of a double-throw switch.

Various Forms of Rates. Many different forms of rates have been devised to meet the range load. Six companies on the Pacific Coast have each adopted entirely different rate systems, but each one gives identical results when figured on the basis of a monthly consumption of 125 kw-hrs. for cooking, or where combined rate is used, taking 25 kw-hrs. for lighting and appliances.

No. 1. Rate 3.6c. net.

No. 2. Rate 4c.—10% discount 10 days. Effective Rate 3.6c.

No. 3. Combined Rate: 1st 30 kw-hrs. per month 7c.
Excess 3½c. Effective Rate 3.6c.

No. 4. 1st 50 kw-hrs. per kw active load at 4c. per kw-hr.
Next 50 kw-hrs. " " " " " 2c. per kw-hr.
Excess 1½c.
(Activc load figured as 100% for the first 2 kw and 50% of remainder.)
Effective Rate 3.6c.

No. 5. 1st 40 kw-hrs. at 5c.
Excess 3c. Effective Rate 3.6c.

No. 6. 1st 25 kw-hrs. at 5c.
Next 25 kw-hrs. at 4c.
Excess 3c.
Discount 5% Effective Rate 3.6c.

In view of this uniformity of return, rate No. 3, which is a combined rate for all uses of electricity in the home is advantageous as the installation requires only one meter and one billing.

In order to insure the use of the range during the twelve months of the year, the Central Station may find it desirable to require a monthly minimum especially where a separate meter is installed. One dollar is probably too low; two dollars possibly too high. The compromise that is fair to both utility and consumer is to charge twenty-four dollars a year. This does not penalize the customer who is away from home for a brief period during summer or winter.

Central Station Man's Opinion. Mr. R. S. Hale of the Edison Electric Illuminating Company of Boston, in response to an inquiry on the subject of range rates, has expressed himself as follows:

> "My own position is that we should base our argument on the combination of the two rates.
>
> For instance, that a lighting rate of ten cents without any cooking might pay.
>
> That a cooking rate of say 3 cents without any lighting would not pay.
>
> That a lighting rate of 3 cents would not pay.
>
> On the other hand, that a rate of 9 cents for lighting and 3 cents for cooking would pay, and would be to the advantage of both the customer and the central station.
>
> Supposing you were considering the lighting business alone, you have to put in feeders, mains, service, transformers, etc. and then supply the current.
>
> Supposing the lighting rate is 10 cents: No one will do any cooking at this rate. The result is that the income from the lighting business has to pay all the expenses.
>
> Now, however, suppose you put in a cooking rate that is not higher than the traffic will bear, as for instance a 3 cent rate: The result is that you get the cooking business.
>
> The additions to the expenses are for coal and also, provided the cooking peak comes at the same time as the lighting peak

(as it frequently does) some additional generating expenses at the station.

The additional investment at the station does not, however, cost anything near as much as the initial investment.

Further, when you come to distribution the addition of the cooking load does not require any increase in the poles, cross arms, etc., and only requires a very slight addition to the copper.

It is obvious, therefore, that adding a cooking load to the lighting load will not cost anything like as much as the cost of the lighting load alone.

If taking on additional kilowatt hours for a cooking load costs only 1½c each, and you can get an income of 3 cents each, the additional profit will be a net gain to the central station, enabling it ultimately to reduce the lighting rate.

The only way to get this is to quote a rate for the cooking not higher than the traffic will bear.

It is, of course, essential to be sure that the cooking rate is high enough to return a profit over and above the added expenses incurred in supplying it.

You will note that this theory justifies a cooking load entirely irrespective of the load factor, diversity factor, demand factor, etc.

In practice, however, there is some diversity between the cooking and lighting, cooking and power, etc., and this makes the cooking even more profitable.

The essential point, however, is that the cooking rate must be low enough to get the business.

The cooking rate need not be figured on the same basis as the lighting rate, provided the income from the cooking is enough to take care of the added expense.

In case there is a margin, the cooking rate should approach the upper limit, and should be kept right up to the amount of what the traffic will bear, because the fact that it might be possible to supply cooking at a still lower rate is no reason why the cooking customers should get the advantage.

When the combination of the cooking and lighting rate increases the income to the company more than the increase in expense,

then all the customers of the company should be entitled to share in this advantage and not the cooking customers alone.

So much for the theory on which we justify the cooking rate to ourselves. If you will think of it, it is exactly the same principle on which we make the power rate lower than the lighting rate in the cases where the load factor and time of use of the two customers, power and light, are the same."

Justification of Cooking Rate

Public Service Commission Rulings. The various state public utilities commissions of the United States have never refused permission to a central station to establish a low cooking rate—a rate far below the domestic lighting charge and ofttimes lower than the rate to small power consumers.

The justification of this low charge is well expressed in the rulings of the rate-governing bodies. In selecting decisions which would be representative of their general attitude toward the cooking rate, the following excerpts were chosen from certain reports of the commissions of Illinois and Oregon.

These decisions were selected because of the experience of these commissions with range rates under opposite conditions. Water power predominates in Oregon, steam generation in Illinois. Both states are centers of great range activity and localities where the low rate for cookery has proved its legitimacy and its necessity to central station development.

An Illinois Decision. The first quotation is from the Illinois Commission's report of the case of Risser & Rollins, Paxton vs. The Central Illinois Utilities Company, July 1916:

"***First***—The heating and cooking load in the city of Paxton does not occur at the time of either the daily or yearly station peak, which presents advantages to the company in that it is better

enabled to utilize to advantage its investment in generating capacity.

Second—Since a large portion of the company's investment is represented by distribution circuits serving residence consumers and, since with only a lighting load being handled from these distribution circuits, the same are unused for a large portion of the day, a service such as the heating and cooking service herein considered, which furnishes a load for these residential distribution circuits during the daytime, enables the company to utilize to advantage an investment which would otherwise lie dormant during eighteen or twenty hours of every day.

Third—Customers for the heating and cooking service are usually not new customers of the company but are already receiving lighting service, which means that they are already provided with a service connection and transformer which will at least partially satisfy the requirements for heating and cooking service.

Fourth—The cooking rate in force by the respondent has been found by experience to be as high a rate as can be secured for this service which is in direct competition with other means of cooking, such as coal, gas and gasoline.

Fifth—Particularly in the smaller communities, where little manufacturing exists, the only hope which can be seen for reducing the rates for general service lies in the development of heating and cooking business and, if this business can be secured at a rate sufficient to meet the actual added expense which it throws upon the utility, plus a small margin of profit, the effect upon the general business of the company will be to enable it to transact its business as a whole at a lower cost per kilowatt-hour, which will naturally be reflected in the rates for general electric service tending to effect a reduction of the same.

In consideration of this sort it must, of course, be realized that theory must in many cases give way to practice. The theoretically ideal situation would exist if each class of service paid its proportionate share of the cost of doing business, plus its proportionate share of the profits to be realized upon the investment. In many cases, however, if this theory were strictly followed,

the business of the company and the actual best interests of the consumers would suffer materially in that rates would be developed which would be so high that they would not attract the class of business to which they are applicable."

An Oregon Decision. This second extract is from a decision made by the Oregon Public Service Commission in the case of the City of Grants Pass et al. vs. California-Oregon Power Co., July 1917:

With the high class business attached to the system at rates reasonable in comparison with the value of the service given therefor, additional service may be extended to other use at lower rates—necessarily less on account of the lower value of the service—which may approach, but should in no case go below, the actual additional cost of providing that service. The acquisition of such business, especially if it be served by facilities already used for other purposes, and at a time when such facilities are idle, may be accomplished at rates considerably above the additional cost incurred and under such conditions will tend to decrease the average unit cost of energy to all classes previously served. Low value business thus becomes an attractive asset, and its promotion, under these conditions, a benefit to all consumers. This appears to us to be a fundamental principle in the development of utility business, and one which, if neglected, may retard the progress of any enterprise.

Proper consideration must also be given to the distinction between costs incident to customers, as such, those attached directly to the quantity of product delivered and fixed costs or those such as interest, etc., which occur without regard to the volume of product delivered by a given plant or the number of customers connected thereto. The latter group especially in hydro-electric operations comprise a large percentage of total annual cost of service and its equitable distribution among consumers, together with proper consideration of purely customer costs is a prime necessity if the rate is to be satisfactory to the consumer and at the same time produce the desired return.

Attractive window display of the Northern States Power Co., Minneapolis, the object of which was to create interest in Customer Ownership and further the sale of the company's stock. Note that payments were as low as $5 a month.

Diversity factors in individual installations and between classes of consumers, and also probable load factors enter into rate making to a degree which precludes discussion at this time.

Financing Extensions

Methods. Among the methods of financing extensions are two popular plans: One is to have the customer pay for the exterior wiring and other necessary expense and return the money to him by remitting a portion of the monthly bill until the whole amount is repaid. The other plan is to sell securities in small lots to customers. Three successful plans which are now in operation by three large central stations are outlined here. Customer Ownership is also described.

THE ILLUMINATING COMPANY

CONSUMER'S CHARGE APPLICATION
FOR COMMERCIAL LOADS IN EXCESS OF 5-KW. CAPACITY

Applies in any instance where the company is required to make an expenditure for the installation or construction of the following:

SWITCHING APPARATUS:
For additional or specific switch gear, meters, instruments, panels, frames, control, cables and buses, connections and transformers, in switch houses or substations.

SUBWAY:
For additional or specific subway from generating plant to substation, from substation to consumer's premises, from generating plant to consumer's premises, or from substation to substation, or from substation to point of feeding overhead line, or from existing distribution system to consumer's premises.

CABLE:
For additional or specific transmission or distribution cable from generating plant to substation, from substation to consumer's premises, from generating plant to consumer's premises, or from substation to substation, or from substation to point of feeding overhead line, or from existing distribution system to consumer's premises.

OVERHEAD LINES—LINE EXTENSIONS:
For additional or specific overhead lines, including poles or towers, with necessary and usual equipment, wire, lightning arresters, line switches, ground wires or connections, or for any work on existing poles or towers, with all the attendant equipment as aforesaid, for increasing the existing distribution system or transmitting direct to consumer's premises.

TRANSFORMERS:
For any step-up or step-down transformers located in switch houses, substations, line houses or other structures, not otherwise specified.

SERVICE ON CONSUMER'S PREMISES:
For the installation of poles, towers, lines, ducts, cables and vaults; also, where the transformer capacity to be installed exceeds 50 kw., for the transformers and switches required; and for special transformers of 50 kw. capacity or less.

Name..... Date.....191.....

Premises.....

The undersigned hereby makes application to The Cleveland Electric Illuminating Company to install or construct, at the expense of the applicant, the following described work:

The above work is to supply.....kw. line capacity to the above premises, which capacity the company agrees to hold and reserve to the use of the applicant for ten years from the commencement of supply, subject to federal, state, county, township or municipal regulation.

1. The applicant deposits herewith the sum of.....dollars ($.....), which is the estimated cost of the above work, upon the understanding that the work constructed shall at all times be and remain the property of the Illuminating Company.

2. Refund to the amount of.....dollars ($.....), which is the estimated cost of the above described work as of July 1, 1914, and hereinafter called the normal cost, will be made to the applicant, subject to the terms and conditions hereinafter specified:
   (a) on the current taken and used by the applicant from the work constructed under this application; and
   (b) in addition, on the current taken and used by other consumers connected to the line or lines constructed under this application, except where the work constructed consists of feeders or an addition to the network in the general distribution system of the company, in which event refund to the applicant will be made only on the current used by those consumers who are connected to that part of the work specifically constructed for the applicant which extends beyond the network in the general distribution system of the company; provided, however, that in no case shall the amount refunded to the applicant on the current used by any such consumer exceed the normal cost of that portion of the work constructed which is useful in serving such consumer.

3. The amount to be refunded to the applicant shall be based upon the current taken and used within ten years after commencement of supply, but the total amount of the refund shall not exceed the normal cost of the work herein applied for.

4. The refund will be computed at a rate per unit as determined by the following formula:

$$\text{Refund rate per kilowatt hour} = \frac{\text{dollars}}{36000 \times \text{contracted kilowatt demand}}$$

The sum of money in the above formula is the normal cost of the above-described work. The refund will be paid by the company to the applicant annually, subject to the conditions herein stated.

The kilowatt demand in the above formula is the capacity contracted for herein and reserved to the use of the applicant by the company.

5. No refund or interest shall be paid unless the applicant's bills for current have been paid in full; nor shall any annual refund payment exceed fifty per cent (50%) of the sum of the bills for the current taken and used within the refund period from the work constructed under this application as herein provided.

6. The company reserves the right to refund at any time all or any part of the unrefunded portion of the normal cost of the specified work.

7. No refund nor interest whatsoever will be allowed on the excess cost of the specified work, which excess is the difference between the normal cost and the amount deposited.

8. Interest, not exceeding six per cent (6%) per annum, will be paid by the company to the applicant annually, upon the balance of the normal cost held at that time and subject to be refunded as herein provided. The annual rate of interest will be computed by the formula:
   Rate = 6/10 of 1% × average hours use per day of the contracted kilowatt demand.

The hours' use per day of the kilowatt demand in the above formula shall be determined by dividing the monthly average of the kilowatt-hours upon which refund is allowed by thirty (30) times the demand contracted for herein.

9. The interest and refund periods will be considered as terminating on the first day of February of each year, and payments shall be made to the applicant, as above provided for, upon the tenth day of the same month.

Canvassed..... Signed.....

Deposit Receipt No.....

All quotations made under this application are subject to change without notice.
All work to be performed is subject to delays due to receipt of material, strikes or labor shortage.

Pacific Plan. The Pacific Power and Light Company, Portland, Oregon, requires an estimated annual revenue from the installation of 50% of the cost of the line—before building an extension. The company arrived at this figure by referring to a report of the Public Service Commission of Washington on the valuation, earnings, etc. of the company made in 1914 and 1915. This report shows that the company has invested 47.8 percent in station equipment, 15.3 percent in transmission lines, 5.8 percent in sub-stations and 28.2 percent in distribution lines. For every dollar invested, the gross earnings amounted to 14 cents and net earnings to 6.5 cents. In other words, the net earnings were 6.5 percent of the investment.

With these figures in mind, the company reasoned as follows: Assuming 6.5 percent as adequate rate of return, gross earnings of 14 cents must be secured on every dollar of total investment of which 28.2 cents is in transmission lines. Conversely then, with every 28.2 cents in transmission lines, gross earnings must amount to 49.6 cents—and an income of 50 cents on every dollar invested in distribution lines must be demanded. These figures of course do not make allowance for depreciation.

Utah Plan. The Range Load Rebate-Contract form used by the Utah Power & Light Company, Salt Lake City, is illustrated here and is self-explanatory. This form can be adopted by the majority of companies. Permission is hereby granted to anyone by the Utah Company.

Cleveland Plan. The Cleveland Electric Illuminating Company of Cleveland, Ohio is one of the pioneer utilities in the financing of line extensions by customers. The form used by this company is reproduced on the opposite page and may be used verbatim by any central station.

UTAH POWER & LIGHT COMPANY
RECEIPT
ON LINE EXTENSION FOR ELECTRIC SERVICE

.....191.....

Received from....., herein called the "Consumer," $..... as an advance to apply on the cost of extending this Company's line to serve the Consumer's premises at No....., under application for service No.....

Said advance will be repaid to the consumer:

(a) One-third of each monthly bill for service furnished at the above address, when the balance of such bill is paid:

(b) As users of this Company's service at other premises on the above extension shall contract for service, this Company will re-pay to the Consumer, $20.00, less the cost of making connection, for each lighting customer connected to the extension, and $30.00, less the cost of making connection for each electric-range customer to the extension until the total of such payments under this and the preceding paragraph shall equal the amount of the above advance, without interest.

The obligation to repay shall cease in any event if, and whenever service at the above address shall be permanently discontinued.

UTAH POWER & LIGHT COMPANY.

By.....
Sales Manager.

The foregoing receipt correctly recites the conditions under which the deposit therein mentioned has been made.

.....
Consumer.

Range load rebate-contract form for line extensions used by the Utah Power & Light Co., Salt Lake City. This is another method of securing the customer's financial co-operation with the utility.

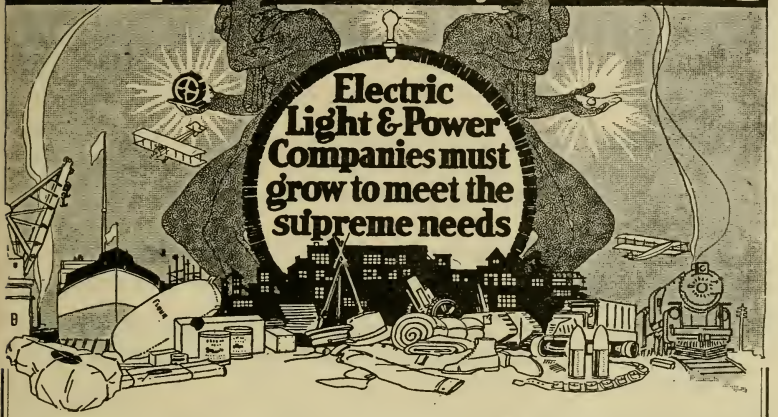
Customer Ownership. An increasing number of the representative public utility companies in America are selling securities to their customers in small lots today. This résumé of Customer Ownership will prove interesting to executives who have not studied the plan.

Customer Ownership has been introduced because it is an excellent builder of good-will which is very essential in the satisfactory operation of a utility. As the question of securing additional capital is paramount today with the majority of central stations, selling securities locally is one of the best solutions of the problem.

Excellent Investment. Central stations which have introduced this plan found that customers owning stock are more appreciative of the service and also better prospects for additional appliances.

Power Light Heat

must be provided to make every article used in war



Invest Soundly in Essential Industries

Supplying the Vital Necessities of Power, Light and Heat

Our 7% Preferred Stock is Now a Most Popular Investment in This City

THE Comptroller of the Currency of the United States —John Skelton Williams—says—"The continued and increasing efficiency of these corporations is important for the successful conduct of the war."

Public utility companies require additional capital in order to meet the urgent demands for service now pressing upon them. *This situation is your opportunity for sound and profitable investment.*

The Preferred Stock of our Company is a thoroughly sound investment—backed by modern physical property, careful and progressive management, and a long record of dividend-paying success.

A large number of our customers are already profit-sharing partners in our organization. More are investing now than ever before. The stability of these industries—the steady demand for their services in war and peace—the continuous growth in business year after year—combine to make this investment most attractive.

Dividend checks are mailed to your address regularly every three months. *The Company pays the normal federal income tax.*

The partial payment plan, of investing in our Preferred Stock, is being utilized by many to save and invest at the same time. Five dollars per share a month makes you a preferred partner.

"*The Straight Road to Financial Independence*" is the title of a booklet we have distributed to our customers. Have you read your copy? It is worth dollars to you.

INQUIRY COUPON

.....1918

NAME OF COMPANY
Street Address

Please send me complete information regarding your investment offering:

Name .....

Street .....

City .....

Get in touch with us by telephone or letter, and learn more about what we have to offer you

Telephone Number

Name of Company

Name of Manager Street Address

Newspaper advertisement usedby the H. M. Byllesby Co. in their campaign to sell preferred stock. Note that this advertisement is supplemented by a booklet "The Straight Roa d to Financial Independence."

Securities in public utilities are excellent investments as:

1. The earnings are stable and because the central station supplies a necessity of community life. Therefore it is practically independent of the violent fluctuations in general business conditions.
2. The central station field is unlimited for the further development of business among present customers in addition to the enormous growth resulting from line extensions and the increase in population.
3. They are protected by the State Public Utilities Commissions through regulation of issues of securities of successful public utility companies.
4. A higher income may be secured through investment in carefully selected public utilities' securities than can be secured by investment in any securities of equal merit.

Where Inaugurated. Among the fifty or more companies which have actively promoted Customer Ownership are the following:

H. M. Byllesby & Co., Chicago, Ill. including Northern States Power Co., Minneapolis; San Diego (Cal.) Consolidated Gas & Electric Co.; Oklahoma Gas & Electric Co.; Western States Gas & Electric Co., Stockton, Cal.; Louisville (Ky.) Gas & Electric Co.
Mahoning & Shenango Ry. & Lt. Co., Youngstown, Ohio.
Pacific Power & Light Co., Portland, Ore.
Idaho Power Co., Boise, Idaho.
Union Electric Light & Power Co., St. Louis, Mo.
Consolidated Gas, Elec. Lt. & Pr. Co., Baltimore, Md.
Pacific Gas & Electric Co., San Francisco, Cal.

One Company's Offer. "To any customer (or employe), we shall sell at par, $100 a share, in ten equal monthly payments, or for cash, from one to twenty shares of the *Seven Per Cent Cumulative Preferred Stock* of the Mahoning & Shenango Railway & Light Company (Youngstown, Ohio).

"Ten dollars a share is paid at the time of subscription and $10 a share on or before the 10th of each month till the full price has been paid.

"Interest at 6 percent per annum will be allowed on all payments till the final payment is made, when the investment will begin to earn 7 percent.

"Payments may be withdrawn upon reasonable notice at any time before the purchase is completed.

"Your subscription will be received at any office, or our representative will call at your convenience. Dividends on three or four shares will return to you, each year, enough to pay the average residential light bill for a year."

The Society's Position. The Society does not recommend Customer Ownership of securities for every community, but it will put any central station man in immediate possession of *facts* and offer suggestions for determining courses of action.

View of St. Louis Company. James D. Mortimer, President of the Union Electric Light & Power Company of St. Louis, in discussing various problems confronting public utilities, has said:

> "The ideal system of ownership is one wherein each customer has a proprietary interest in the utility in proportion to the service rendered him. This we are endeavoring to formulate through our movement to sell stock to customers. We believe in the eventual mutual ownership of public utilities as the best from the standpoint of the customer's and from every social and economic view. Such a movement if carried to the possible limit would greatly promote community and individual thrift and prevent public utilities from serving as a bone of contention in politics. There would then be no demand for ownership by the municipality, and the problems of regulation would comprise only those of seeing that the charges for services were equitably distributed as between the different classes of customers."

CHAPTER II

THE ELECTRIC RANGE

Practicability and Supremacy

Evolution of Cooking Devices. The art of cookery is as old as history. Its development measures the development of civilization. And in the evolution of its methods, the generation, application and utilization of the heat has kept pace with the increased cost of the successive fuels.

The first cooking was done on a large flat stone heated by the sun. The cost of fuel was nil, operation undependable, results poor. The next method was the open fire on the ground. The results were better, but only in proportion to the cost of the fuel which was the labor of gathering the wood. And so on through the centuries with the varied uses of wood, fuel oil, coal and natural and artificial gas, the cost of the fuel has always been on a par with its utilization and the cooking results.

Practicability. Today electricity produces the best and ultimate heat energy. Its dollar and cents cost is sometimes more than fuel heat but it is applied and conserved so scientifically that the electric range is vastly more efficient than its predecessor. Thus its cost compares favorably with fuel heat.

The practicability of the electric range lies in its perfect performance and product. Not only does the device fit in with the scientific development of the age and the cleanliness and efficiency

of the home but it is the only stove in which perfect cookery is accomplished by the control of the heat instead of the continuous basting, shifting and stirring of the food.

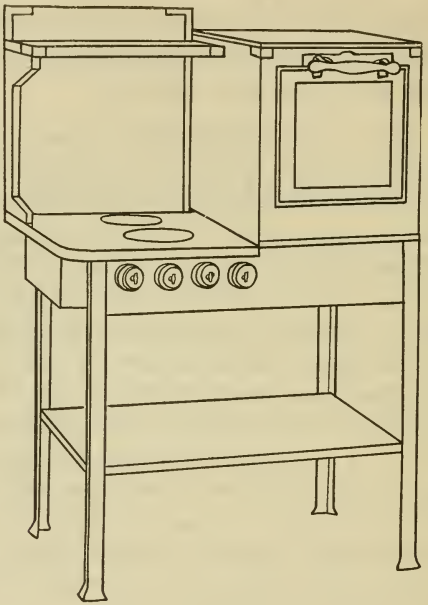
Supremacy. The electric range stands supreme because it does not have the disadvantages, faults and inconveniences of the fuel stove. It is the only cooking appliance which does its work miles away from the hot, dirty work of building, lighting, feeding and watching the "fire" and cleaning-up the waste material of the fuel.

The range does not dry-out, burn nor over-cook foods; will not soot pots nor discolor the walls and woodwork; cannot vitiate the air, devitalize the housewife nor kill the plants; does not heat the kitchen and tend to melt the ice in summer; will not burn-in grease or warp the pots and skillets nor does the heat fluctuate or is it affected by atmospheric conditions. Moreover the range eliminates the use of matches and flame; prevents the danger of fire, explosion and asphyxiation; saves fuel storage space and is the biggest factor in helping keep the kitchen as clean as any other room in the house. For these detailed features see *Advantages of Electric Range*, page 143.

Construction and Price

Individuality. The electric range is as radically different from the fuel range as the $7 electric iron is from the 50 cent sad iron. Its remarkable effectiveness is secured through its scientific design—the result being made possible and practicable through the medium of electric heat with its flameless, sootless and an odorless operation, uniform intensity and economic utilization.

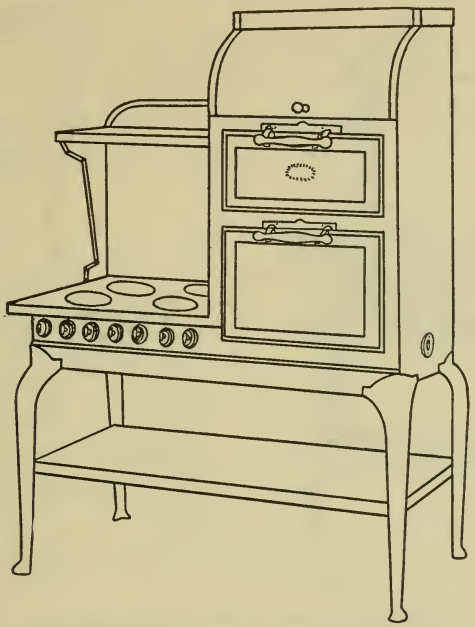
General Construction. The range is an electrical *development* —not merely an improved *stove*. The fundamentals of its con-



General cabinet type electric range

struction and operation are based and dependent on the scientific utilization of electric heat.

The electric ranges on the market today are as strongly made and as efficient and durable in service as the sturdy electric motor. They embody only the best electrical and mechanical construction, are attractive in appearance and designed so that all parts may be readily cleaned and easily repaired. The resistance wire which is used in the standard makes is a combination of nickel and chromium—an alloy of maximum resistance and minimum oxidation.

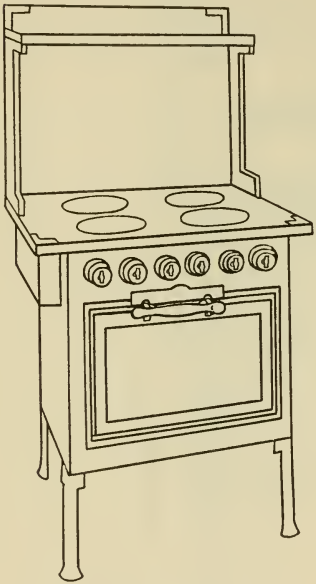


General cabinet-type electric range with broiler and warming compartment.

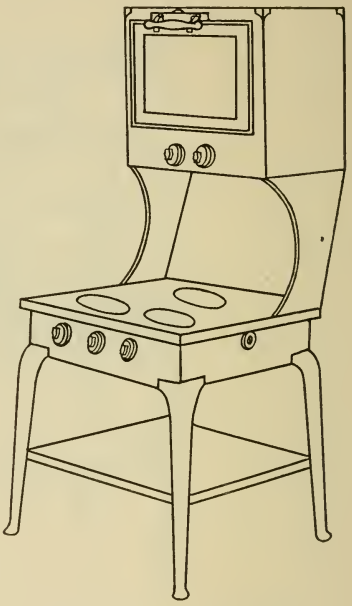
The majority of manufacturers employ individual fusing. This means each surface and oven unit has its own fuse and a separate connection to the main line. The advantage lies in their independence. Should trouble occur, the entire range is not out of service and the cookery may be continued with other surface or oven units.

This is an advantage that would be greatly appreciated should trouble occur during the preparation of a meal on a Sunday or holiday when repair service might not be immediately available.

Each standard make of range has been tested and approved



General type of low-oven electric range.



General type of elevated-oven electric range.

by the National Board of Fire Underwriters. For description of this organization see page 207.

Oven. Range ovens are made in two designs: The regular type and the automatic type. The difference between them lies in the automatic, thermostatic control of the latter type through the medium of a circuit breaker.

The basic design of the electric range oven incorporates all the good points and omits all the imperfections of both the fireless cooker and the old-style fuel oven. The walls are thickly packed with a heat-insulating material which conserves the heat. The

doors fit tightly like those of a refrigerator. All the best makes have an oven vent of a scientific character.

The ovens usually have two units—one each at the top and bottom. Some oven units are permanently installed, others easily removable which facilitates periodical cleaning. The standard control is by three-heat switches.

Surface Units. Surface units are made in three types: Enclosed-type, reflector-type, and open-coil-type. The heat-movement principle of the enclosed type is Conduction; of the reflector type Radiation; of the open-coil-type, Radiation and Conduction—Conduction when the cooking vessel comes in direct contact with the heat-insulating receptacle of the unit. For description of these principles see *Electric Heat*, page 51.

The enclosed type is composed of resistance wire enclosed within a metal plate. The reflector type consists of open coils of wire held in position by an insulated frame and under this a reflector with a highly polished surface. With this type of unit, the utensil gets both direct and reflected rays of heat. The open-coil unit is composed of coils of resistance wire fastened in grooves of a plate made of heat-resisting porcelain or composition.

The efficiencies and characteristics of these three types cannot be discussed here. It is foreign to the plan of the book. All three types however give excellent results and have proven to be satisfactory to both their users and the central stations. Each type moreover is very strongly constructed and guaranteed for one year from date of purchase by user. Standard control is by three-heat switches.

Price. The average electric range today costs considerably more than the average fuel range of equal cooking capacity because it requires approximately 100% more material and labor in its

construction. It contains virtually every part of a fuel range and in addition requires surface and oven electric heating units, their costly resistance wire, fireless cooker construction, oven insulation, switches, fuses, asbestos lining, terminals, bushings, connecting wires and the high-priced skilled labor necessary for the assembling, wiring and welding of the many electrical parts.

So the first thing a salesman should do is to realize and "sell" himself on its careful construction and the ample justification of the price. A trip through a range factory would forcibly drive home the first point and an analysis of manufacturing costs would prove the second one.

A few central station men look at the seemingly high price of the electric range as retarding to its sales. Others do not. The question is an arbitrary one—depending on viewpoint—*but primarily on salesmanship!* See *Selling the Electric Cookery Idea*, page 128.

DO NOT use the word Burner when designating a surface or oven unit. Webster's Dictionary defines Burner as "That part of a lamp or gas fixture where the flame is produced." To the average person, Burner implies fire and flame. The electric range is without fire and flame and therefore the terms *Surface Unit and Oven Unit have been recommended.*

Operating Cost and Economy

Governing Factors. The cost of operating an electric range is dependent upon so many factors that discussion is futile. Electric cooking bills vary with the rate, the number in family, the character of the cooking and the care used by the operator. So the way to estimate its cost is to take the average figure for the average family and decrease or increase this in proportion to the importance of the governing factors.

Average Figures. The average consumption is 125 kw-hrs. a month. The average rate is $3\frac{1}{2}$ cents per kw-hr. The average household consists of 5 persons. The average monthly bill is $4.37 per month.

Five persons using 125 kw-hr. of electrical energy in thirty days approximates 0.85 kw.-hr. per person per day. This figure can be used for estimating the cost for a household of five. Another person more or less slightly increases or decreases the consumption. Six persons do not consume 100% more current than three persons. The current consumption is much less per person with the increased number in the family.

The character of the cooking is a big factor in the bill. If fancy cooking is done—breads and pastries baked constantly and soup stocks made frequently—the bill for current will of course be much larger than for a family which prefers simple cooking and buys bread and pastry from a local bakery.

The cook is another factor. If she does not make use of the conserved heat, does not turn off all the electricity when she has finished cooking and if she heats water several times a day for tea, the bill will greatly exceed the one next door where the housewife takes advantage of every opportunity to conserve the current.

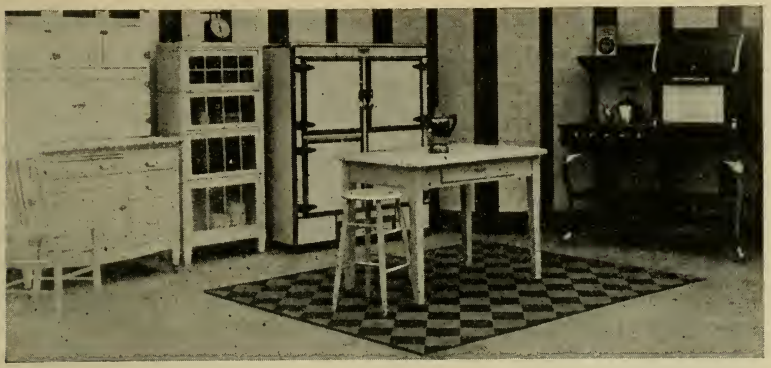
Economy of Operation. The price of the range and the cost of operation should never enter into a sale until the prospect has been thoroughly *sold on the idea and the advantages of electric cookery!* Then, if she is deterred by the first cost, overcome that obstacle by suggesting the small monthly payment plan. If she thinks the slight increase in the cost of operation is not justified, point out the many savings which are worth so much to her per month and which, when added together, will make the monthly bill seem small compared with the value received.

For example, the housewife with a fuel range scrubs the soot from 10 pots and skillets a day—total 300 a month. The saving of this work and time is worth at least a cent a time per pot—which is $3. Moreover, it is worth so much per month to be rid of the constant danger of fire, explosion and asphyxiation; so much per month to have more nourishing and juicier foods. When these many advantages are added together and a value placed upon them, electric cookery becomes the most inexpensive of any method today. See *Operating Costs*, page 145.

Its Place in the Home

Modern Homemaking. Homemaking is a profession and no other occupation in the world compares with it—in its importance to the welfare and comfort of the human race, physically, mentally, morally and financially.

Today home management and domestic science are recognized as important factors in a woman's education. Not only are there hundreds of home-economics institutes but courses on the subject are included in the curriculums of the majority of high schools and colleges. Domestic science and homemaking sections are featured also in national women's magazines and new books on the subject are continually being published.



A modern kitchen of 1919—containing an electric range, white-porcelain refrigerator, white-enamel kitchen cabinet, white-enamel dish closet, porcelain-top kitchen table, white-enamel chair and stool, percolator, scale and other labor-saving and efficiency appliances. The kitchen of today can be and should be as modernly equipped as the finest office.

So the housewife of today is learning her trade. By the use of many domestic labor-saving devices, she is able to modernize her home, do better work in less time and even reduce her daily household expenses. This also enables her to cope with the changing social conditions: The permanent scarcity and high wages of servants, the increased price of food, clothes and home necessities and the demands on her time for social duties, charities and other work.

Conveniences. The modern home has generally, a telephone, electric light, a scientifically-made refrigerator, electric washer, electric cleaner and many other time- labor- and material-saving appliances because they are not only conducive to better living but practical and economical—all factors considered.

Everything in the modern home makes for cleanliness and comfort with one exception: The fuel range. The fuel range in

a clean modern kitchen is on a par with the horse in an up-to-date garage. The fuel range is dirty, unreliable, unhealthful and it demands a great deal of attention. So it is continually being replaced by the electric range with its flameless heat, uniform generation and distribution and its scientific operation just as the automobile is superseding the horse.

Completes the Home. The electric range fits into domestic life today because it regenerates and modernizes the one old-fashioned and yet the most active and important department of the home—the kitchen.

Moreover it plays a dominating part in the scheme of efficient housekeeping and completes the home. It is one of the biggest factors in permitting the housewife to do her own work, easily, happily *and without loss of pride!*

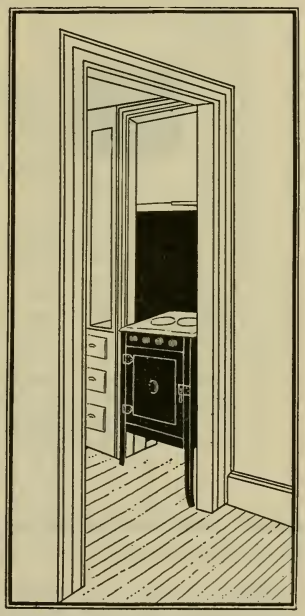
The conservation of time and labor pays for its first cost and the conservation of food for its operation. It is not a luxury any more than the telephone or the electric cleaner. *Therefore it "belongs"—and it has a well-defined place in the home today!*

"THE HISTORY of Civilization proves that human beings are not satisfied with cheapness. If we were willing to utilize the cheapest article which would serve our purpose, we would today be cooking over wood fires; we would be wearing denim trousers; we would be walking instead of burning 28 cent gasoline; and we would be eating rice and lentils instead of squab and alligator pears. Moreover we are not satisfied with the old, uncomfortable laborious time-killing ways of doing things. We want speed, comfort, luxury. *And we are willing to pay for it.*"

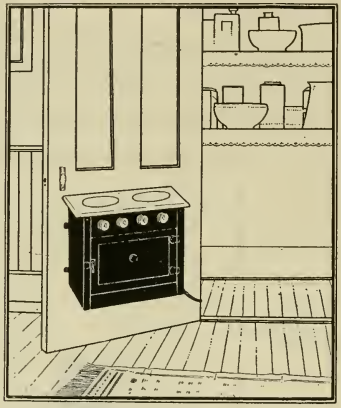
Kitchenette Ranges

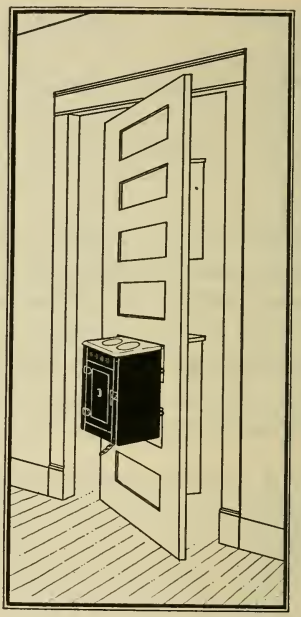
Market. Owing to the high cost of living particularly in the big cities, there has been a steadily increasing demand for smaller and more compact apartments. Families living in residences have moved to apartments. Families in apartments have moved to smaller apartments. In the city today, the parlor is often a thing of the past. It is now a living room. These conditions have led to the remodelling of large houses into small suites, the majority having a small living room, bedroom, bath and kitchenette.

As a rule the kitchenette is merely a closet or a recess in the wall for the cooking device. This condition demands not only a small and compact, but a clean, cool and handy cooking device. And this is found in the electric kitchenette range which is a combination hot-plate and portable oven. This device can be installed in a little recess or compartment built into the wall, in closets, on the backs of closet doors, on pivot doors and in fact almost any little out-of-the-way place. These ranges are also used in summer homes, domestic science schools, studios, buffets, soda fountains and similar places.



Large size kitchenette range installed in a recess of a former butler's pantry. This residence has been remodelled into small apartments of two and three rooms with kitchenettes. The electric range is ideal for such installations because it is the cleanest, coolest, most convenient and most compact cooking device.

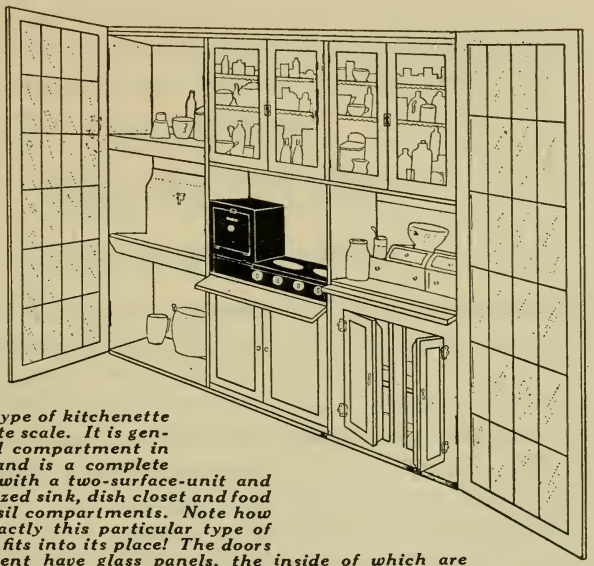




Two methods of installing kitchenette ranges: On the back of a pantry door and on the back of a "pivot" door. When the cooking is being done the door is closed and the odors escape through a ventilator in the ceiling of pantry. Thus the "kitchen" is enclosed within the pantry and this room eliminated in the small apartment.

Load and Installation. The connected load of the average kitchenette range is from two to three kilowatts. The average demand is very low and it is therefore a most desirable current-consuming device for the central station because in such small apartments only breakfast and luncheon are prepared by the housewife. The family generally has dinner at a restaurant.

In installing these kitchenette ranges on pivot doors or on the backs of pantry doors the connections are generally made with a flexible steel-armored conductor with sufficient slack to allow for the full opening of the door. (Note illustrations.)



Another popular type of kitchenette on a more elaborate scale. It is generally an enclosed compartment in the dining room and is a complete kitchen in itself, with a two-surface-unit and oven range, full-sized sink, dish closet and food and cooking utensil compartments. Note how snugly and compactly this particular type of kitchenette range fits into its place! The doors of the compartment have glass panels, the inside of which are generally curtained. When the kitchenette is not in use, the doors are closed and give the appearance of doors leading to another room. Such a kitchenette can also be installed in studios, bachelor apartments, light housekeeping rooms and similar places where only breakfast and luncheon are prepared. Owing to lack of space and the growing custom of "dining out" in the evening, the kitchenette is becoming one of the popular kitchens of the day. It adequately serves the purpose of the home and eliminates one full-sized room—the kitchen. And it has been made possible and practicable by the ELECTRIC kitchenette range!

Probably the most popular type of kitchenette range in use today. Owing to the fact that its oven and surface units are so compact and occupy such a small space, this range can be installed in almost any recess or compartment in the kitchenette. Yet it is large enough to cook a full meal for several people. The connected load is about 3 kilowatts. Seven or eight of these ranges in a remodeled house which was formerly served by ONE kitchen is indeed good business for the central station.

CHAPTER III

ELECTRIC COOKERY

History and Development

Introduction. The first practical attempt at electric cookery was made in England in 1890. And the first effort to introduce electric cookery to the public was at the Crystal Palace Electrical Exhibition in London in 1891. In 1895 in the Cannon Street Hotel, London, the first electrically-cooked banquet was given in honor of the Lord Mayor and was a success both in the cookery and in creating general interest.

The first activities in the United States took place about 1900 when a fireless cooker manufacturer in Toledo put an electric heating unit in his device. No progress worthy of mention occurred until 1905 when three electrical manufacturers began to experiment with a frail and undependable hot-plate. It was not until 1909 that a range which "stood up" and cooked for any length of time was put on the market.

Development. During the period since 1909, the electric range manufacturers have developed the most perfect cooking device in the world and a large number of central stations have solved the numerous technical and commercial problems in connection with its merchandising, installation and service.

Today more than 6,000 of the 17,333 electrically-served communities in this country have an electric cooking rate of 5 cents or lower. Of these rates, 70% are 4 cents or lower and more

than 30% of the total are 3 cents or lower. Some of the most progressive central stations are actively merchandising ranges twelve months in the year with range specialists and modern sales organizations.

Interest in electric cookery has developed more rapidly than in any other cooking method and last year electric cookery received the approval of prominent cooking authorities and dietitians of the United States. It is also being adopted by the leading public and private high and normal schools, cooking and domestic science schools, colleges and universities. Electric cookery articles are being published regularly in the household sections of the national women's magazines.

Not only has the use of the electric range made great strides in the United States and Canada but there are a large number of them in use today in England, France, China and Central and South America. Hot plates and portable ovens have also been sold to virtually every country in the world. But America has been the most progressive because it has established favorable rates and merchandised ranges on a practical business-like basis.

Large Station Sales. The first electric ranges were installed by small central stations which did not carry appreciable power loads, but in the past three years a number of the biggest stations in the country have actively promoted the range and today carry very profitable cooking loads.

The Southern California Edison Company with its principal office in Los Angeles has 2,920 ranges on its lines today; the Edison Electric Illuminating Company of Boston has 2,000; the Idaho Power Company, Boise, Idaho over 3,800; the Texas Power & Light Company of Dallas has 2,014; the Montana Power Company of Butte has 2,015; Union Electric

Light & Power Company, St. Louis has 1,700; the Utah Power & Light Company, Salt Lake City 3,236 and the Washington Water Power Company, Spokane, Washington, 3,147. For more complete report see insert folder in back of book.

Superiority. Briefly, the superiority of electric cookery lies in the ideal quality of electric heat, which is even, dependable, easily regulated and not subject to fluctuation through pressure, atmospheric conditions nor drafts nor can it be extinguished by liquids boiling over. The ovens are thickly insulated on the fireless cooker or refrigerator principle. Their heat is not only conserved but they are free from gaseous fumes and air currents which not only jeopardize the purity of the food but dry it out to the detriment of its nutritive value, weight and delicacy. Therefore the range produces larger roasts—roasts which are richer, juicier and that retain virtually all of their natural flavors and nutriment. Bread baked in the electric oven retains its moisture and is more evenly baked and browned. Cakes are more evenly raised and more delicate in flavor. For complete description of Electric Cooking see *Better Cooked Food*, page 135.

SAY "ELECTRIC *Cookery*"—not "cooking." Cookery is the only noun form of the word "cook" in the latest dictionaries. Cooking is a present participle and the expression "Electric Cooking" is incorrect.

Electric Heat

Generation. Fuel heat is produced by a gaseous, vitiating soot-producing flame which is the result of a chemical process of combustion with oxygen. Electric heat is produced by electric current passing through a resistance wire which does not affect nor is affected by the atmosphere.

Advantages. Electrical energy produces the most perfect heat. It is radically different from fuel heat in that it can be concentrated at the point of utilization, in any quantity at any temperature, in any atmosphere and with a uniform intensity.

It is produced without combustion, flame, soot or fumes; can be confined to any definite area; is under absolute control as to temperature, precisely measured as to quantity and utilized at a greater efficiency than fuel heat because of the scientific thermal-storage construction of electric heating apparatus.

The utilization of electric heat eliminates the buying, storing and handling of fuel and disposing of waste material. Its saving in labor, time and space results in a saving in overhead and taxes. Its safety reduces the fire hazard.

Heat Characteristics. Heat is imparted in three ways: Radiation, Conduction and Convection. *Radiation* is the passage of heat from one object to another not in direct contact through the agency of ether waves. The intensity varies inversely as the square of the distance. Example: A radiant-type electric heater. *Conduction* is the passing of heat between two bodies in direct contact. It passes more quickly than by radiation and without possible interruption. Example: The electric iron. *Convection* is the transfer of heat from one object to another through the agency of air, or, in a fluid mass, through circulation of the move-

ment of elements in the mass. Example: An immersion heater or a steam radiator against which the water or air moves, absorbs and distributes the heat.

Methods of Measuring. Quantity is measured by the British Thermal Unit which represents the quantity of heat energy required to raise the temperature of one pound of water one degree Fahrenheit. Intensity is indicated by the temperature which is recorded by a thermometer and pyrometer in degrees. Water has been universally adopted as the medium on which these standards of measurement are based.

Comparison with Other Methods. In the majority of cities, the dollar and cents cost of a given number of electric heat units is higher than those produced by the combustion of fuels. But electric heat is utilized at three to five times the efficiency of fuel. This and its many other advantages compensates for the increased cost and makes it the least expensive when all factors are considered.

Without doubt, electric energy will be the ultimate heating medium for many operations because of its greater efficiency, safety, cleanliness and varied possibilities in its application, generation, conservation and utilization. These are merely a few fundamental facts about the characteristics of heat which may be interesting to the electric range salesman.

Fireless Cooker Principle

Evolution. The electric cooker is an improvement of the fireless cooker which is in turn a development of the old "bean-hole" in the ground. Centuries ago this method of applying heat to food was in vogue. Men deposited hot stones in holes in the

ground around which they placed meat and fish and then covered the pit with leaves and dirt. After several hours the food was cooked.

Purpose. Not until recently has the principle of this heat storage method been appreciated and its scientific possibilities realized. With the introduction of the fuel stoves, combustion was constantly maintained throughout the cooking operation. The economy of using stored heat was neglected. But today the electric cooker is coming into use with this principle scientifically developed.

Foods Cooked. Food cooked in this way is more delicious and nourishing than by other methods because the full nutritive values and natural flavors have been retained. See *Better Cooked Food*, page 135. The fireless cooker principle is particularly adapted to the stewing and boiling of meats, boiling and steaming of vegetables, steaming of puddings, baking of beans, escallop vegetables and for the stewing and preserving of fruit.

The Electric Cooker. Electric cookers are manufactured for attachment to lamp sockets and their connected load is less than the 660 watt limitation of a branch circuit. Their consumption may be compared favorably with that of the electric iron—only they are used many more times a week. In fact when a housewife becomes accustomed to this appliance she will probably do a large part of her daily cooking in it.

CHAPTER IV

RANGE LOAD

Investment and Return

Average Conditions. The average central station operates the major part of the 24 hours at only a fraction of its capacity. In fact half the generating capacity would probably suffice for 90% of the time where the industrial power load is small. Off-peak business must therefore be developed to get a more continuous return on the large idle investment. The electric range and water heater are the best mediums to build up the valleys with the least added investment.

At first thought it might seem that the capital investment to take on this load would be large but this can be shown not to be the case. By referring to the insert in back of book it will be seen that with a 5½ kilowatt average connected load of a range the average demand is 2.4 kilowatts or less than one-half, as all heating units of a range are not on at one time. Therefore 1,000 ranges with a connected load of 5,500 kilowatts would have a 2,400 kilowatt demand if used simultaneously. In actual practice, however, the demand is only 550 kilowatts, making the over-all diversity factor ten to one. (See page 55.)

Pro-rating Investment. The yearly income per range is $52.50 at the average rate of 3½ cents—or a total of $52,500 for these 1,000 ranges. If the installation cost to the central station is figured at $75.00 per range (far above the average), this would

total $75,000 against which the income of $52,500 would be a very large percentage. Many domestic lighting customers pay only from $6 to $12 a year and without added cost for meter reading, billing, etc., an additional return of over $50 is secured. Pro-rating the installation cost over a period of five years makes the return a highly profitable one.

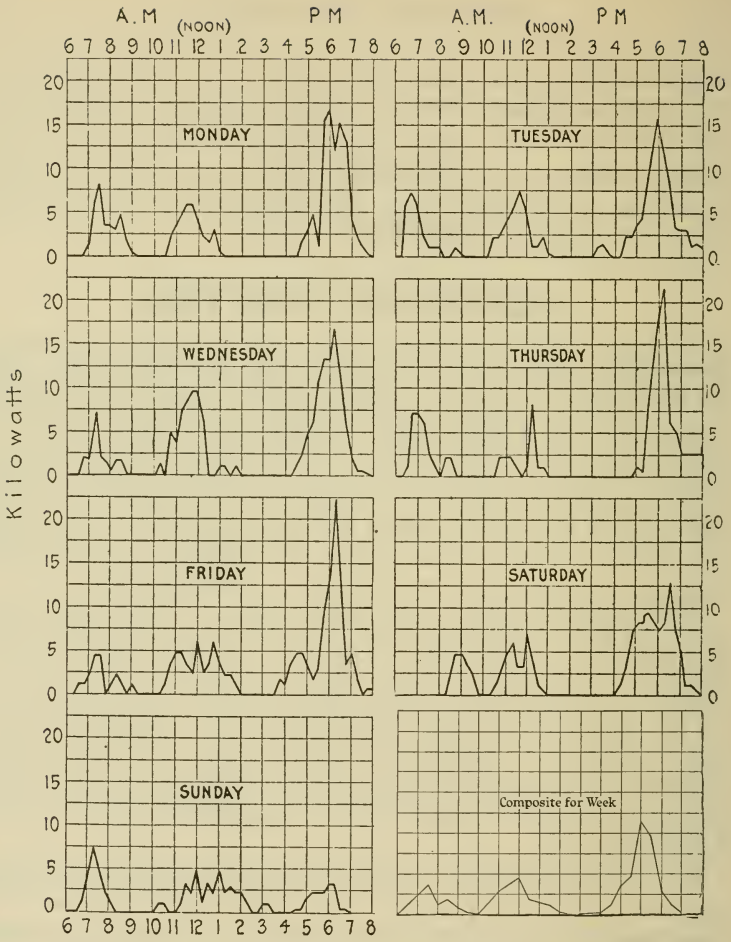
Characteristics of the Load

Character. The range load varies with the size of the town, the section of the country, customs of the people and the season of the year. In a small town the principal meal of the day is usually at noon. In the city it is more often cooked between five and seven o'clock in the evening. In the city the evening peak is later than in the small town, owing to the later dinner hour which is necessary as people are obliged to travel longer distances between place of employment and the home.

The morning cooking load comes before the commercial load. At noon-time a considerable part of it comes between twelve and one o'clock when a large portion of the commercial load is off. In the evening the cooking load generally extends from 4:30 p.m. to 7:00 p.m. Some of it may overlap the lighting load. However it has been stated by central station range authorities that the overlap is less than 10% in the Winter and very little in the Summer.

The range is operated 365 days in the year, whereas industrial power is used on an average of only 300 days in the year. The range load is also the only appreciable load which is in operation during the daytime on Sundays and holidays.

Demand and Diversity Factor. Assume that the connected load of a range is 5 kilowatts. The demand is seldom more than



Daily load curves for one week for ranges and lights in the Blackstone Apartments, Milwaukee. The composite curve for the week gives an excellent idea of the average range load. The Milwaukee Electric Railway & Light Co. state that while the individual maximum demand of single range may average between 40 and 60 percent. of the connected load, the maximum demand for a group of 25 ranges will not exceed 15 percent of the connected load.

2.17 kilowatts or 43 percent. This is due to the fact that all the units are not operated at once and that little of the cooking is done on "High" which is used in figuring maximum demand. "High" is used only in heating up the units. As soon as the desired temperature is obtained, "Medium" (or one-half of "High") will maintain it. Ofttimes "Low" (or one-fourth of "High") is used for the longer periods of cooking.

When a utility has 1,000 ranges on its lines, one might assume that a station capacity of 2,400 kilowatts would be required to handle the load. But this is not the case as experience has shown that the diversity factor is 10 to 1 when this number of ranges are installed. Therefore instead of 2,400 kilowatts, just one-tenth of 1,000x5 or 500 kilowatts will carry the load.

Two Examples of Range Loads. The Northern Idaho & Montana Power Company in Kalispell, Montana, experienced a remarkable cooking load growth. During a week in July, the electric energy output amounted to 68,000 kilowatt-hours exceeding all former records with the exception of Christmas week of the previous year, when the output amounted to 69,000 kilowatt-hours.

This large output is attributed to the number of electric ranges placed on the lines during the Spring. It is unusual for a central station to enjoy an output in the Summer months approaching that of the Winter because of the much greater use of electricity for lighting during the dark months.

The Bismarck, North Dakota, station had a capacity of only 900 kilowatts in 1917, yet 150 ranges with a total connected load of 500 kilowatts were installed on its lines. No trouble however was experienced during the peak period. This case is interesting as a large proportion of the lighting customers have electric ranges in their homes.

CHAPTER V

INSTALLATION

General

Factors in Installation. Correct installation is a *vitally important* factor in electric range service. This importance cannot be over-estimated for it is the very foundation of the satisfaction of the purchaser. A finished installation includes five factors:

1. *The wiring* used must be of ample size or there will be a drop in voltage and the units will not give their full heat.
2. *The voltage* must meet specifications on the nameplate or there will be similar trouble.
3. *The grounding* of the frame must be thorough to afford protection to the operator.
4. *The workmanship* should be of the highest class to avoid dissatisfaction and trouble.
5. *The location* of the range in the kitchen—a location which will require the least number of steps and have the best day and artificial light.

As the central station is compelled to spend a considerable amount of money in the sale and installation of a range—for advertising, general sales expense, handling equipment, rearranging of inside wiring, and in some instances the reconstruction of service and distribution lines—it should take no chances of having a troublesome installation.

Central Stations' Responsibility. If possible and practicable, a central station should wire and install all ranges during the first few weeks of its first campaign. This will insure against mistakes which might be made by inexperienced wiremen. But after a number of ranges have been installed and the central station has established a wiring standard, both as to methods and cost, it is not bad policy to encourage the contractor-dealers to handle this business, provided of course that they will follow specifications, be reasonable in their price, and willing to have the central station retain the necessary privilege of supervision and final inspection and approval before payment is made.

It is the duty of the central station to see that every range installation handled by a contractor-dealer is in accordance with the central station specifications and all ordinances and fire insurance requirements. See *Insurance Requirements*, page 206.

Standard Units. Units of standard makes of ranges are designed for 110 volts. Current at 110 volts permits the use of a heavy wire which gives the unit a very rugged and durable construction. That is why it has been standardized. The majority of manufacturers will furnish units for 220 volts if requested in order. These units however are made with smaller-sized resistance wire and their use is not encouraged as they do not stand up as well after they have been in service a short time.

DO NOT maintain a "Trouble" or "Repair" Department. Both words create a bad impression and imply there is so much trouble and repairing necessary that a whole department is required to handle it. "Service Department" is much better.

Wiring Specifications

The following specifications, based largely on the N. E. L. A. Range Committee Report, are considered desirable:

Specifications for Wiring Electric Cooking and Heating Devices.

I. General. These specifications are not intended to give detailed instructions covering the methods to be used in wiring electric heating devices and ranges, but to furnish an outline of certain general arrangements and requirements which should be followed in every installation. Each job presents a different problem to the wireman, the details of which must be solved by the man on the ground, and the completed job made to conform with the general requirements given herewith and the Regulations of the National Board of Fire Underwriters.

II. Service Connections.

(a) *Pole to House*

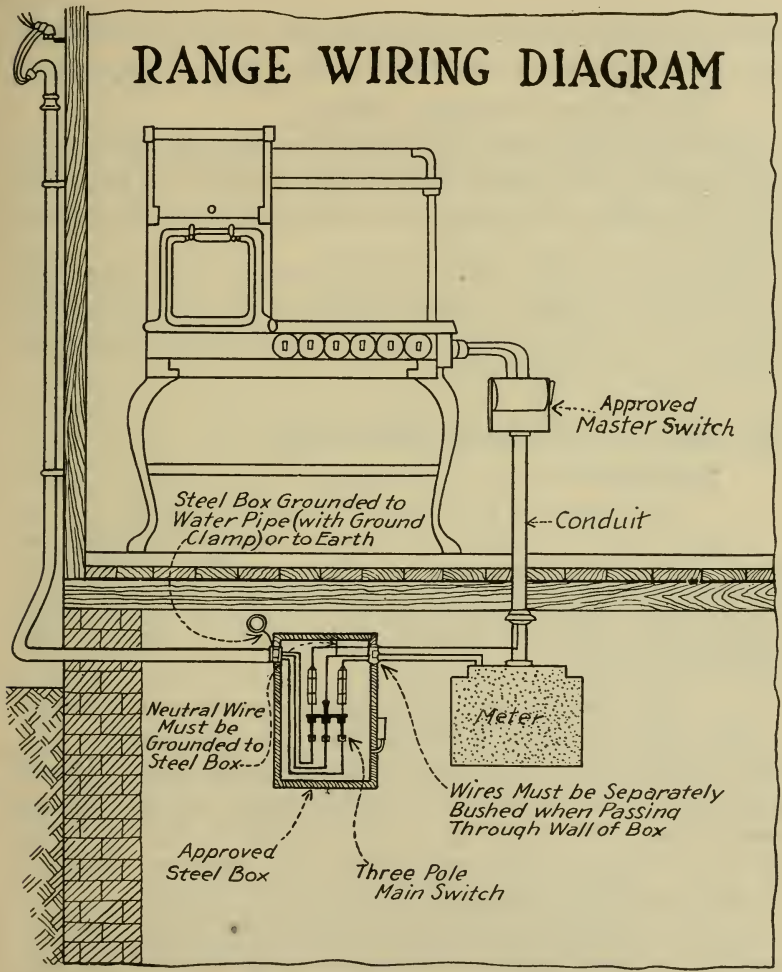
Service connections will be made 3-wire, 110/220 volt, from pole line to house outlet, for all installations of 1000 watts or over connected load. No. 6 copper wire will be the minimum size used for this class of service.

(b) *Building Outlet to Meter*

(1) *One-Family House*

The wires from building outlet to main line switch should be installed in metal conduit. Three wires, No. 8 or larger, and 1-in. metal conduit shall be used for all installations having a connected load of 1000 watts or over.

In wiring new houses, when the connected load is unknown, the wireman shall use his judgment as to whether the ultimate


RANGE WIRING DIAGRAM
Approved Master Switch
Steel Box Grounded to Water Pipe (with Ground Clamp) or to Earth
Conduit
Neutral Wire Must be Grounded to Steel Box
Meter
Wires Must be Separately Bushed when Passing Through Wall of Box
Approved Steel Box
Three Pole Main Switch

Simple range wiring diagram drawn in accordance with the regulations of the National Board of Fire Underwriters.

load will require greater carrying capacity than that of No. 8 wire and provide for the maximum in the original installation.

(2) *Flats and Apartment Houses*

The Fire Underwriters' Regulations require that mains feeding more than one range be large enough to supply the total load of all the ranges at the same time, disregarding any diversity of load.*

Where it is probable that the other tenants in the house will install electric ranges or heating devices, it will prove much cheaper to provide capacity for the total ultimate load when making the first installation.

III. Main Line Switches, Meter Loops

(a) *Location*

(1) *Range on First Floor of Residence or Flat*

A new service connection should be installed, locating the meter and main line switch in the customary place and connecting existing lighting circuits to the new service. The range circuit should then be extended from meter to range by the most direct route.

(2) *Range on the Second Floor of Apartment or Residence*

The existing location of meters should be used wherever possible, installing the new circuit to the building outlet. Where necessary, the old meter loop should be taken out, and connections to the existing lighting circuits brought to the new meter location. The main line switch shall have sufficient capacity to care for the total load.

As apartment house meters are usually placed in the basement, it will be necessary to run a 3-wire connection from building out-

NOTE The requirement is distinctly unreasonable, and local permission may be secured to modify it.*

let to meter board, and a range circuit from this point to the range.

(b) *Materials, Sizes*

Unless the existing main line switch is a TPST fused knife switch of an approved type and of sufficient capacity to carry the additional load, a new TPST fused knife switch of 60 amperes or greater capacity shall be installed in an approved metal cabinet or switch box. The outside legs of this switch should be fused with rated ampere capacity of fuses equal to 150 percent of the connected load. The neutral wire shall be grounded on the load side of the switch but *must not be fused.*

Whenever possible the cut-outs for the lighting circuits shall be enclosed in the same box with the main line switch. The accompanying sketch (page 61) illustrates the method of installing switches, meters, etc., recommended for standard practice.

IV. Range Circuits

Materials, Sizes

All range circuits shall be 3-wire No. 8 rubber-covered stranded wire *or larger* conductor depending upon the size of the installation and the distance from meter to load. The table given on page 64 shall be used to determine the size of conductor which shall be used in these circuits. Where conduit is used, the range circuit shall be carried in approved metal conduit of not less than 1 inch inside diameter, which shall be installed in accordance with the Underwriters' Regulations.

ELECTRIC RANGES *can be and should be* installed to the utmost satisfaction of both the purchaser and the Central Station on the very first day. Therefore a troublesome range installation is an inexcusable mistake. And it can kill more range sales than ten satisfactory installations can create prospects.

Wiring Table

2 Per Cent Drop

Load Watts	No. 8 35 amp.	No. 6 50 amp.	No. 4 70 amp.	No. 2 90 amp.	No. 1 107 amp.
Distance in feet for 110/220 volt, 3-wire circuits.					
1000	375				
1500	250				
2000	185	295			
2500	145	235			
3000	125	198	316		
3500	105	170	270		
4000	93	148	236		
4500	83	132	213		
5000	76	118	188	300	
5500	68	108	172	273	
6000	62	99	158	250	312
6500	58	92	145	231	289
7000	54	85	135	215	268
7500	50	79	126	200	250
8000		74	118	187	234
9000		66	105	166	208
10000		59	95	150	187
12000			79	125	156
15000				100	125
20000					94

Three No. 8 or larger conductors shall be used in all new houses where the size of range to be installed is unknown, but will not exceed 7000 watts. When the length of circuit is great, ample size of conductor should be provided to avoid excessive voltage drop. Three No. 8 wires should be the minimum used, even though larger than at first required, as this will permit installing a larger range without changing the wiring. This increased cost would amount to only approximately 5 percent of the combined cost of ranges and wiring in most cases.

V. Master Switch

A master switch which clearly indicates whether it is open or closed, and a pilot light, where local requirements demand it, should be installed at a point within easy access of the range. This switch should be of the three-pole, fused type, safety switch. It is essential to have a thoroughly safe installation, so use a safety switch which is so constructed that there is no possibility of coming in contact with live parts in opening and closing or re-fusing the switch.

Where such a safe-guarded switch is not used, a TPST knife switch shall be installed in a steel cut-out box, so that the fuses are on the *load* side of the switch. This box should be installed at a minimum height of five feet above the floor. A caution label, warning against re-fusing the switch while in the closed position should be posted on the inside cover of the box. The neutral wire should be grounded but not fused.

VI. Double Throw Switches for Water Heaters

Where water heaters and ranges are supplied from the same circuit and their operation controlled by a double throw or snap switch, this switch shall be of an approved safety type.

VII. Grounding Frame

The neutral wire of 3-wire circuits shall be grounded at the main switch and at the range. All conduits shall be grounded by means of No. 6 stranded copper wire fastened in an approved manner by approved ground clamps. The frame of the range must be thoroughly grounded. Joints or taps in the ground wire shall all be soldered and where the wire runs in an exposed position, it must be protected from mechanical injury by means of moulding.

Ground connections should be made to the street side of the water meter wherever possible. Connections to pipes must be made with approved clamps and the pipe must be thoroughly cleaned of paint or dirt, so that a good connection is obtained.

It has been assumed that the range manufacturer has balanced the heating units connected to each leg of a 3-wire range. If this is not the case, the units must be reconnected, or the size of wire, switches and fuses increased to amply provide for the maximum current on the more heavily loaded side.

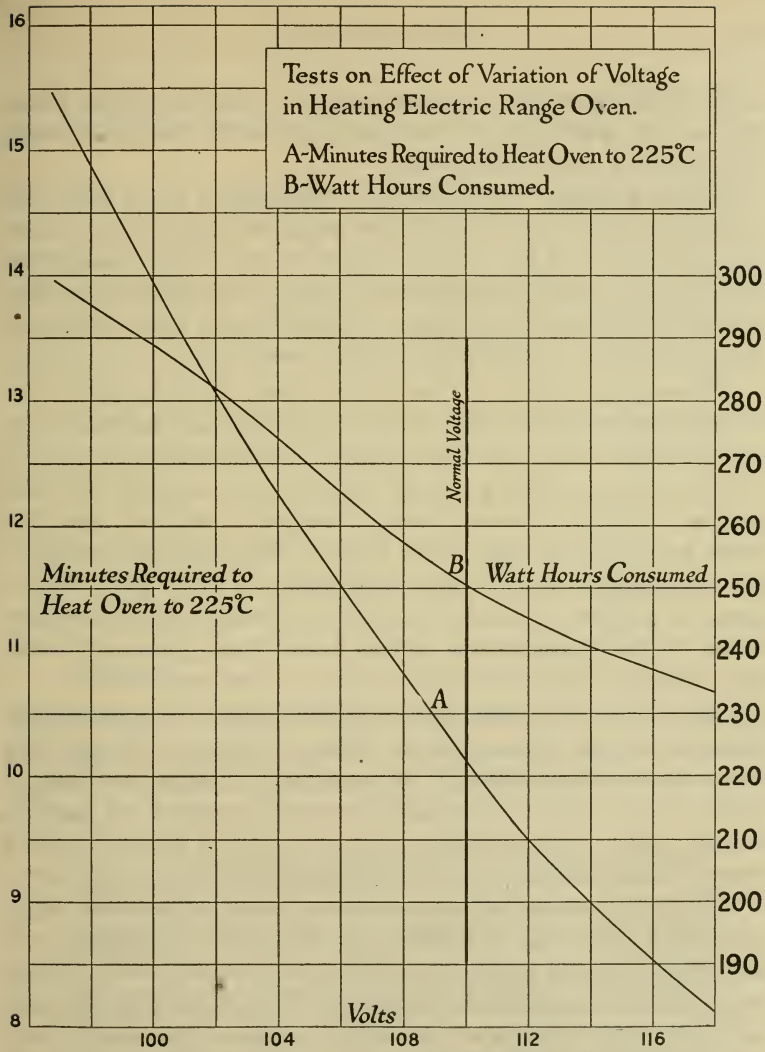
Recommendations

Voltage. The concensus of opinion on the question of voltage seems to be that a balanced 110/220-volt, 3-wire service is the most desirable, even though balancing on a 110/220-volt system is difficult with only a few ranges.

The following data will aid in calculating the secondary distribution requirements for a typical range installation. In this calculation, it is assumed that the range and water heater installation will not exceed a maximum of 4½ kilowatts and will operate at 110 volts, thus requiring 40.9 amperes (none inductive). Accordingly, the voltage drop will be R x 1 x feet, divided by 1000.

With No. 4 wire, the voltage drop on the 4½ kw. installation, 1000 feet distant, will equal 20.3 or 0.0203 volt drop per range foot. With No. 2 wire, the voltage drop on a 4½ kw. installation, 1000 feet distant, would equal 12.76 volts or 0.01276 volt drop per range foot.

Allowing 10 volts drop (on 220-volt) at center of load on a 110/220-volt balanced 3-wire secondary (each range to be balanced with every other range installation on this service), each



The Society for Electrical Development, Inc.

This chart shows the importance of maintaining voltage.

feeder from a transformer must have not in excess of 1000 range feet on No. 4 wire at 220-volts and not more than 1600 range feet on No. 2 wire at 220-volts.

On the straight 110-volt service, allowing 5 volts drop, the allowable range feet for No. 4 wire would be 315, and the allowable range feet for No. 2 wire would be 400. As an example of working out range distribution by means of the above data, the following will hold for a typical installation on 110-volt service from a balanced 110/220-volt 3-wire system:

Allowing six houses to the block (three on each side of the street) and the secondary wiring extending only two blocks in any direction from the transformer, and assuming 50 percent of these houses to have ranges installed, there would be 12x50 percent x 1 block distant equal 6 ranges x 300 feet, which is equal to 1800 range feet. This exceeds 1600 range feet which is the allowance for this class of distribution on No. 2 wire. Therefore, the number of ranges must be cut down on this secondary feeder to five installations, which would then give 1500 range feet, which is within the limit for No. 2 wire as specified.

The voltage of a range circuit should receive more attention than the voltage of the lighting circuit. A drop in voltage of a lamp can be compensated by using a lamp of higher wattage or lower voltage. But this makeshift cannot be carried out with an electric range. If the voltage drops, the cooking operation slows down. When this occurs, the range operation is unsatisfactory.

The voltage should be tested when a range is installed, when additional ranges are connected to the same transformer and when the customer makes a complaint about the service. These tests should be made at the terminals of the range with all units switched "Full" and when the other ranges on the same transformer are in use. Current should be delivered to the range at

the voltage specified on the nameplate of the range or units. But a variation of two or three volts is permissible.

Transformer Capacities. Transformer capacity need not equal range demand because a range has so many units that its diversity factor is uncommonly high.

The following table may be used in determining the number of ranges which can safely be connected to a transformer, assuming each range has a maximum demand of 5,000 watts:

Number of ranges	*Size of Transformer*
1	5 KVA
2	5 "
3	7½ "
4	7½ "
5	7½ "
6	7½ "
7	7½ "
8 to 11	10 "
12 to 20	15 "

Meter Sizes. In considering the proper-sized meter for both lighting and cooking current, the following excerpt which is quoted from a report issued by the Engineering Department of a prominent manufacturer, is informative:

> "Our meter will start at approximately ½ percent of full load and will record fairly accurately at 1 percent of full load. It is more reliable, however, on 2 percent of full load and we would recommend that if possible, you arrange to have the lowest load not less than 2 percent of the rating of the meter. The overload capacity and overload accuracy of these meters will greatly facilitate this matter. The normal load may be anywhere from 50 to 150 percent of the rating, and the maximum load (such loads as are seldom used) may be as high as 200 percent of the rating without endangering the meter. Of course the meter is a little slow on 200 percent load.

"The losses in the potential circuit of these meters are between 1.0 and 1.1. The loss in the 15-ampere current coil is 0.87 watts at full load, that of the 25-ampere is 1.07 watts, and the 50-ampere has a loss of 2.7 watts.

"The overload capacities of these meters are quite liberal. As stated before, 200 percent load almost continuously will not damage any of these. They will certainly stand 50 percent overload continuously or even more. The 5 and 10-ampere meters have even more overload capacity than the 15-ampere meters and above. These meters will practically stand 400 percent load almost continuously while the 15-ampere meter will be damaged somewhere around 300 percent load."

The following tabulation shows the results that will be secured from different-sized new meters with small loads:

Watt Load	*Percent Load on a 10-amp 3-wire Meter*	*Percent Registration*
15	.68	96
20	.91	100
	Percent Load on a 15-amp 3-wire Meter	
15	0.45	68
20	0.60	90
	Percent Load on a 25-amp 3-wire Meter	
15	0.27	16
20	0.36	46

Testing the Range. Before a range leaves the central station storeroom, it should be completely assembled, thoroughly examined for loose bolts and nuts, cleaned up and polished; all units tested for wattage and the oven "burned out," which consists of turning both units on "Full" for about twenty minutes, with doors wide open, and burning off the paraffine which the manufacturer is obliged to put on the units and oven lining as a protection against rusting in transit.

CHAPTER VI

MERCHANDISING METHODS

First Important Steps

General Basic Factors. Before entering range merchandising, the central station must recognize and accept several important fundamentals and accomplish certain work which underlies the successful development of the cooking load:

1. Realize all the factors in the work of revolutionizing the local cooking methods—the time, sound merchandising, persistent advertising and 100% central station service involved.
2. Recognize in the range a heavy load builder different from any other domestic or commercial current consumer; one which will demand the gradual rearrangement of the lines based on future requirements for several years.
3. Secure the enthusiastic co-operation of every department of the company.
4. Sell an electric range to every "electrical" man in the town.

Revolutionizing Cooking Methods. Changing cooking methods which have been practiced for years is not an easy task. It cannot be done by a hurry-up campaign or with any prospect of saturating the locality with electric ranges in a very short time.

The majority of homes have good fuel stoves. So the initial field for the electric range lies in new business—new residences, apartments, restaurants, clubs, Summer colonies and similar

places where the owners are in the market for cooking equipment. Of course a large percentage of electric ranges sold today have superseded fuel ranges which were in excellent condition. But during the first few months of sales effort, it is better to concentrate on the better developed prospects in the market.

These sales will be the easiest to secure and will, with steady educational advertising, consistent sales effort and efficient central station service pave the way for more business. Gradually the existing fuel stoves will be discarded and replaced by electric ranges. In a few years the town will reach a high percentage of saturation and the central station will reap the harvest of the missionary work which is required in the beginning.

Co-operation of Entire Company. After the executives and the Sales Department have analyzed the range load, studied the plant and distribution system, investigated the sales possibilities and decided to take the inevitable step, the first move is to hold a conference of the officers, superintendents and heads of departments—preferably preceded by a dinner which will put them in a receptive attitude.

The purpose of the meeting is to "sell" the idea to all present, the rearrangement of the system to the Engineering Department, the handling of the load and the effect on the operating cost to the Operating Department, the billing and the time-payment accounts to the Accounting Department and so on through the different divisions of the company. Each department is then instructed to prepare reports on anticipated conditions and costs for the benefit of the manager. And finally the Sales Department must have the estimated appropriation approved by the executives.

The Engineering and Operating Departments should prepare

data on alterations, operating costs and estimate such items as the time required to get new equipment. The Accounting Department should submit costs on the additional bookkeeping; and a statement of the amount the company can afford to invest in new equipment, merchandising and advertising. And the Service Department should estimate installation and maintenance costs.

Selling Every "Electrical" Man. The first step in selling is to get a range in the home of every "electrical" man in the town—from the president of the central station to the smallest electrical dealer. Electric ranges are sold to the public on what users and "electrical friends" say about them.

Every man in the electrical business is supposed to know about the facts and figures of the industry. So he is always asked "confidentially" by his friends whether the electric range is as practicable and inexpensive as the salesman states. Sometimes he knows; often he does not. But he *will* if he owns one.

Price and Selling Policies

Price Maintenance. The greatest mistake in range merchandising today is selling below manufacturers' list prices. It is a false policy because it deliberately takes the legitimate profit from one department to add a smaller one to another and bases the sales angle on the price appeal which never sold a range. Moreover it is unnecessary because electric ranges have no standardized price.

The Sales Department is a separate and distinct organization from the Operating Department. Its functions, budgets and equipment have nothing whatsoever to do with the other. So sales expenses should not be borne by the Operating Depart-

ment. This department should show a profit and there is no reason why the Sales Department should not be self-supporting.

Suppose a range plus the standardized price for installation costs the central station $200. The selling price to the customer—whether the first or the last one in the town — should be, say, $220. But many central stations sell the range for less than cost—"as an introductory offer." The resulting impression on the purchaser is that the range is not worth its full price. The effect on the central station is a loss of a large amount which would help sell a considerable number of additional ranges and protect and encourage the contractor-dealer and the other sales channels. See *Contractor-dealer's Position*, page 124. Range sales will be just as numerous whether made at a profit or a loss. This has been demonstrated by the experience of many central stations.

The difference between $150 and $200 is just a state of mind—and nine times out of ten it is the central station which *thinks* the price is too high. It is just as easy to get $200 as $150 when selling a device which has no standardized price. Purchasers do not know whether the range installed is worth $150 or $250. All they know about it is what the salesman tells them. If he tells them the real facts in diplomatic sales language, they will want the range. And when they want a range they will buy it—buy it because they want it and not because $50 has been taken off of the legitimate price!

Merchandising Problems. Maintain one price to everyone. Showing favoritism breeds bad feeling. Don't sell more ranges than can be quickly installed and given prompt service of every kind. Maintain just one installation arrangement. Some central stations give the purchaser a choice of two plans. The service

department will do it or the local contractor will do it. It is a bad policy because it puts it up to the customer who does not know which is better.

The cost of the wiring can advantageously be included in the price of the range. This will save the salesman the difficult task of selling the wiring—and making two sales instead of one. Another difficult problem is overcoming the impression that the cost of operation is high. It is solved by establishing a flat charge for the first thirty days and in having a capable demonstrator teach the housewife the economical use of the range.

Other policies which must be decided upon are: Time payments, trial installations, introductory offers. Problems that will arise are: Higher operating cost, water and kitchen heating and the slower-than-gas-operation. These last four points are discussed under *Overcoming Obstacles*, page 145. Each will be dependent upon and governed by local conditions.

Time Payments. A time-payment policy is necessary when selling to the poorer classes and it is often an alluring inducement to the middle classes as "the small monthly payment added to the light bill is never noticed."

A state of mind exists today in which people think they cannot afford to pay out more than $5, $10 or $20 at one time. But they will keep on paying a small amount indefinitely—if they don't have to give up very much in one payment. This bit of psychol-

"THE PUBLIC no more expects a bonus or a cut price on the electric range than it would expect trading stamps on a Packard." Central Stations have found that the best sales policy is to sell ranges at the manufacturer's list price *plus* a profitable standard installation charge.

ogy has sold thousands of homes, automobiles, pianos, victrolas and other expensive articles.

It is much easier to sell $200 ranges on monthly payments of $10 than $150 ranges on payments of $20. So a time payment policy must be established to increase range sales. With such a policy, 5 percent will be added to the selling price for interest, bookkeeping and other expenses. The majority of companies ask for 10 to 20 percent as the initial payment and the balance paid in six to twelve installments.

Trial Installations. A range sale like every other sale is based on *confidence*. As the range is a new device, women are naturally skeptical as to its practicability and operating cost. Therefore trial installations are often necessary to prove to the prospect that the range is all that it is claimed to be. This policy shows also that the central station has enough confidence in the range to permit the prospect to try it and buy after actual experience.

Trial installations however should not be advertised nor urged upon anyone who happens to show interest in the range. They should only be suggested to responsible prospects who have been 50% sold. Promiscuous installations for women who "will try anything once" just for the novelty is an expensive proposition for the central station.

In other words, trial installations must be made—but the prospects should be selected with care to avoid curiosity seekers. Make every sale or trial a personal matter. Avoid irresponsible requests for such an installation by some plausible excuse, such as *depleted stock*. This will usually discourage the whimsical woman. When a trial has been granted, no restriction nor red tape should be attached to the contract. The length of a trial is usually 30 days. A trial payment of at least $10 should be exacted, which, if the range is accepted, is applied on the price.

This trial payment should include (cover) the first month's current bill, therefore no meter connection is necessary. If presented in the proper way this has the appearance of offering the first month's current free. This is certainly attractive to the new owner of the range and she will undoubtedly feel a certain amount of freedom in conducting her experiments and getting used to the range without paying for any extra current that may be consumed by so doing. This can be used as a very attractive offer and to good advantage in closing the deal.

If the customer orders the range removed at the end of 30 days, the demonstrator should try to restore her confidence or correct any wrong impressions. But if the customer is firm in the request, the range should be removed quickly without haggling. In trial installations made to date, probably 90% have been retained which proves that the range fulfills all claims.

Introductory Offers. Introductory offers are necessary at times, but they should not be in the form of cut prices, for the reasons explained under *Price Maintenance*, page 73. Women cannot resist buying when they get something "free" so it is oftimes a profitable plan to add $10 to the selling price and make some "special" allowance on old stoves, or include a "free" water heater or a "free" set of combination utensils, or a set of dishes, a grill, toaster, percolator or other appliance. But do not cut the price. A bargain price is never half as tempting as something given "free" with the purchase.

Miscellaneous Policies. Range salesmen should not be obliged to divide their time and effort on the sale of other appliances. The sun's rays do not burn until brought to a focus—and neither is a range salesman's work effective until he is able to concentrate on ranges. If two men are selling ranges and appliances, the better plan is to have each man specialize.

When an electric range supersedes a fuel stove, the best plan is to allow a small amount on the fuel range and remove it as quickly as possible. This act destroys the possibility of the woman going back to the old stove—to "warm up" the kitchen, because the month's electric bill was too high or for any other reason. This is not only safeguarding against any whimsicality, but insures a 365 days' use of the electric range which is less likely if a fuel range is handy and can be used. The old fuel ranges can be sold in territories where electric service is not available—or if they are worn out they can be sold for old iron.

Setting a bogy sometimes gives the sales organization a pace to follow—a factor which will do more to insure the success of the range merchandising than any other single element. It will act as a stimulant to the salesmen and a guide to the commercial manager. This bogy should be pro-rated by months—the first month demanding the lowest number of sales and the last month of the year the largest number—because of the accumulated effect of the missionary work and the sales which will be made from the first few installations. Adding a bonus for exceeding the figure will also be found useful.

Sales Department Work

Organization. The size of the sales department will depend on the size of the central station and the population served. Assuming the central station has an exclusive field in a town of 30,000 population, its sales organization might well consist of the sales manager, a home and an exhibit demonstrator and three or four salesmen or saleswomen. If special campaigns are conducted in the Summer, a good plan is to engage college students as "prospect hunters."

The sales department should sell 100% Satisfaction with

each range. This should be the underlying principle of every sale. As other departments do not come in direct contact with the people, they are likely to forget the sentiment, psychology and other vital elements in the harmonious relationship between the customer and the central station. For this reason every other department should be subordinate to and under the direction of the sales department when it is necessary.

Sales Manager's Position. The sales manager is responsible for the sales, for his salespeople, for the advertising, demonstrations, follow-up work, installation, service, maintenance and the company's good-will. In a few words, his duties are to:

Analyze sales possibilities
Make a map of the distribution system
Draw chart and classify sections of town
Lay out complete sales plan for the year
Estimate selling cost
Establish a sales bogy
Prepare price and selling policies for approval
Choose the types of ranges to be sold
Employ salesmen and demonstrators
Put them through their educational course
Complete details for advertising
Make arrangements for demonstrations
Sell a range to every "electrical" man
Co-operate with the contractor-dealer
Get department and hardware stores to display ranges
Approve all salesmen's plans
Report weekly progress to general manager

His first move should be to analyze local financial, commercial and economic conditions, all of which will have an influence on his sales. If business is depressed, he will want a less elaborate merchandising plan than he would if prosperity was at its height. As a domestic trade barometer, he should study the sales charts of the largest local department store.

Range Campaign Statistics

Standing	District	Salesman	Total Range Sales Allotment	To be Sold during 1917 Campaign	Range Contracts Secured	Sales Points Earned (basis Contracts Secured)
1	Denison	H. H. Stanfield	20	17	9	529.20
2	Tyler	S. J. Fechenbach	55	52	23	442.75
3	Eagle Pass	A. B. Hillan	95	75	32	427.20
4	Terrell	Harry Hind	96	90	37	385.39
5	Commerce	H. L. Cadwallader	143	132	49	370.93
6	McKinney	Harry Hind	185	170	63	370.56
7	Cleburne	H L. Barnes	82	77	27	351.00
8	Hillsboro	L. D. Wittkower	266	249	86	344.86
9	Ennis	Otis Wilbor	224	214	73	340.90
10	Sherman	H. H. Stanfield	24	21	7	333.20
11	Bonham	C. W. McCutcheon	150	137	42	305.76
12	Waxahachie	J. H Simpson	200	189	49	258.72
13	Taylor	Jeff Murphy	308	261	62	237.46
14	Sweetwater	H. A. Spencer	246	219	50	228.50
15	Temple	G. M Depuy R. W Snyder	356	305	65	213.07
16	Palestine	S. J Fechenbach	50	48	9	187.29
17	Brownwood	R. B Clarkson	115	109	15	137.55
18	Paris	H. V Applebaugh	50	47	5	106.50
19	Gainesville	H H. Stanfield	19	16	1	62.50
20	Waco	H. L. McLean	41	41	0	0.
21	Wichita Falls	Manager	51	43	0	0.
			2776	2518	704	5633.34

March 1st to Sept. 30,
Days of campaign passed to July 5th
Per cent of campaign period passed
1917 range allotment
Ranges sold March 1st to July 5th
Per cent of range allotment sold
Ranges yet to be sold
Campaign days remaining

MUST GO at rate of 14 per day, or 98 per week.

Page from the bi-weekly company magazine of the Texas Power & Light Co. showing how they energize the range salesman and maintain general company interest in range sales during the season by publishing the progress of each man on the sales force. This idea proved to be a real sales stimulator.

Remember the range is *not* a seasonable proposition. Everyone thought so once. But they were mistaken. Today electric ranges are sold twelve months of the year where sound merchandising effort is maintained.

Therefore initial sales work should be focused on prospects who are in the market or whose position and prosperity favor a sale. The readiest market consists of new apartment house owners, families moving into their own homes and owners of worn-out stoves. The prospects whose financial condition is good are determined in another way. For example: If it is harvest time, the agricultural people are more inclined to spend money than those interested in the manufacturing or selling of farm implements, paints or similar products which are bought principally in the Spring.

The sales manager should lay out a map of the distribution system so that he may always have before him a knowledge of his extensions, their boundaries and the location and size of his transformers. This map together with a sales chart will graphically show him where and where not to direct his sales effort. See *Prospects and Follow-Up Work*, page 105.

He prepares a complete sales plan for the year including both domestic and commercial effort as he should include restaurants, hotels and clubs as well as homes.

In estimating the cost, the factors involved are:

Salaries of the salesmen and demonstrators
Cost of advertising, demonstrations, displays, etc.
Percentage of his salary
Percentage of rent and other overhead

After estimating the cost for the year, he should set a reasonable sales bogy, the number of range sales necessary to absorb this sales cost and show a profit when they are sold at manufacturers' list prices. This method of distributing the entire sales

cost over a period of time will reduce the merchandising cost per range during the first two or three months. The first range will always be the most expensive and the most difficult to sell but the cost and effort will be reduced with each sale.

Price and selling policies must be determined. See *Price and Selling Policies*, page 73. Ranges must be ordered. Care should be taken in selecting the ranges. In fact greater care than in the selection of any other current-consuming device because an electric range can do more to increase or decrease the prestige of the central station than any other appliance. Buy on merit. Ask other sales managers which makes they have found reliable. Employ real salesmen. See *Salesmen and Demonstrators*, page 87. Educate them. Plan demonstrations.

Handling salesmen is another important duty. Advice is more effective than criticism. Always request rather than command. Remember the power of kindness. Keep up enthusiasm. See that the salesroom and show windows and all other factors in the merchandising are kept *alive*. Sales activities are inclined to slow down if there is not some power behind them which continually injects new interest, new enthusiasm and new punch.

During the first few months it is well to approve all plans of the salesmen and demonstrators so that no indiscreet action will be taken. Mistakes will happen but many can be avoided by keeping in close touch with everyone in the sales organization.

Establish a co-operative plan with the contractor-dealer, the hardware and department stores whereby they will exhibit ranges and receive a commission for selling or a certain amount for the names of prospects who become purchasers. Read *Contractor-Dealer's Position*, page 124.

Before firing the opening gun of the campaign, a range should be sold to every possible employe, every electrical jobber and

contractor-dealer; also every influential man whose name may be used in testimonial advertising. Sell ranges to the owners and managers of restaurants, hotels, clubs and similar places to pave the way for sales of larger equipment to these establishments. In other words, lay a foundation both in a domestic and commercial way before starting the actual campaign.

When all final arrangements have been made issue a bulletin for the employes describing the entire sales plan, the range, the rate, introductory offers, discounts, commissions to them and any other information which they should know to be able to answer simple questions about the rate or the range. Also see that every employe receives a copy of each piece of advertising as it is issued.

Each week a general report of progress should be composed for the general manager. Other duties of the sales manager are included under other sub-headings in this chapter on *Merchandising Methods.*

Salesmen's Work. Each salesman is given a certain section of the town or territory for which he is directly responsible. His work lies primarily in changing Class C Prospects into Class B Prospects and Class B Prospects into Class A Prospects—and then into Purchasers. See *Prospects and Follow-up-Work*, page 105. Concisely his duties consist of:

Compiling a card index of his Class B and Class A Prospects.
Sending them preliminary advertising which contains a coupon to be returned for some other folder, booklet or information.
Getting his Class B Prospects into his Class A file
Sending Class A people advance literature and a request that he should be allowed to make a personal call
Selling ranges
Following up installations
Reporting weekly progress to sales manager.

A salesman must employ his time efficiently. Never make a personal call until the Prospect has received range literature and knows a few things at least about electric cookery. Remember a personal call costs twenty times as much as a folder or booklet.

Upon calling, the salesman must ascertain the way the woman can be sold: By recommendation of a neighbor, through demonstration at the electric shop, by a trial installation in her home or some other means. After a contract has been signed, the salesman should get a definite promise from the service department as to the day and hour of the installation. Arrangements should then be made for the home demonstrator to be there when the service is turned on.

Telephone the purchaser once or twice to learn if the range is giving satisfactory service, how it is liked and whether he can be of service. Make it clear that the central station will do everything possible. If possible, however, a personal call at the home is much more satisfactory.

For methods of securing prospects, see *Prospects and Follow-up Work*, page 105. For sales methods see *Selling Points*, page 128. For general knowledge read the entire book. The merchandising and service chapters are absolutely necessary; and the technical chapters are written in non-technical language and contain essential points about the station system and the work of the operating men which are helpful in sales work.

Demonstrators' Duties. The work of the home demonstrator is described under *Educating the New User*, page 175. The work of the demonstrator who conducts the public cooking demonstrations is described under *Displays* and *Demonstrations*, page 94. The qualifications of both are discussed under *Salesmen and Demonstrators*, page 87.

Merchandising Throughout a Territory. Selling ranges in a number of small towns demands a somewhat different merchandising plan. The territory should be divided into sections which are put in charge of local managers who report to the sales manager in the executive office.

After the campaign has been well started in the home city, a combination technical and commercial man should go ahead to the first town selected and prepare the field for the coming of the sales crew which should consist of a salesman and a demonstrator. This man educates the local manager and the wiremen, sees that the ranges arrive and puts on the advertising campaign which announces the coming demonstration.

When the sales crew arrive and take charge of the situation this advance man goes on to the next community. The sales people continue the advertising, conduct the demonstrations, sell as many ranges as they can during the three or four weeks of their visit and lay out the future activities for the local manager who will continue the work with the aid of an assistant and a good cook, preferably one who is well known in the town.

As the work of this salesman and demonstrator usually involves long time-consuming trips on visits to homes widely separated both before and after the purchase, many companies have found it profitable to furnish these people with light automobiles which increase the efficiency of the crew from 40% to 60%.

Service Department Duties

Organization. The organization of the Range Service Department should be composed of conscientious, courteous men who understand and always maintain that necessary "At-your-service" attitude toward the public. Before activities begin,

the repair men and wiremen should be given three talks: *First* by the manufacturers' salesmen who will describe the construction and operation of the ranges; *second*, by the chief engineer who will give them the fundamentals of range installation with the transformer, meter and wire sizes which he has adopted as standard; *third;* a talk by the sales manager on the importance of Service, featuring the point that the service department is more important in the sale of a range than the sales department. These service men should be specialists and not handle other work. They should familiarize themselves with Chapter Five on *Installation* and Chapter Nine on *Service and Maintenance.*

Specific Work. The service department should be prepared to install a range promptly after the sale is made. Half the joy of a purchase is in immediate delivery—particularly to a woman. As Service is what the central station is selling, this prompt installation is one phase of it which creates a good impression. If the delivery cannot be made within forty-eight hours, a definite promise *which can be fulfilled* should be given as to the day and hour of the installation and the availability of the service.

Before delivering a range to the home, it should be set up in the warehouse, all nuts and bolts tightened and each surface and oven unit tested. The oven should be "burned out" to save the housewife this inconvenience, much current and from smoking up her kitchen.

For two or three months, a frequent periodical examination of the range should be made to see that it is in perfect condition. Ofttimes a terminal connection will become loosened and the unit therefore is unable to give its maximum heat. The annoyance will be so slight that the housewife does not think it important enough to call a repair man. It is the duty of the

service department therefore to assume the responsibility of discovering such necessary repairs.

The repair division of the service department should carry an adequate supply of range parts. See *Range and Parts Stock*, page 92.

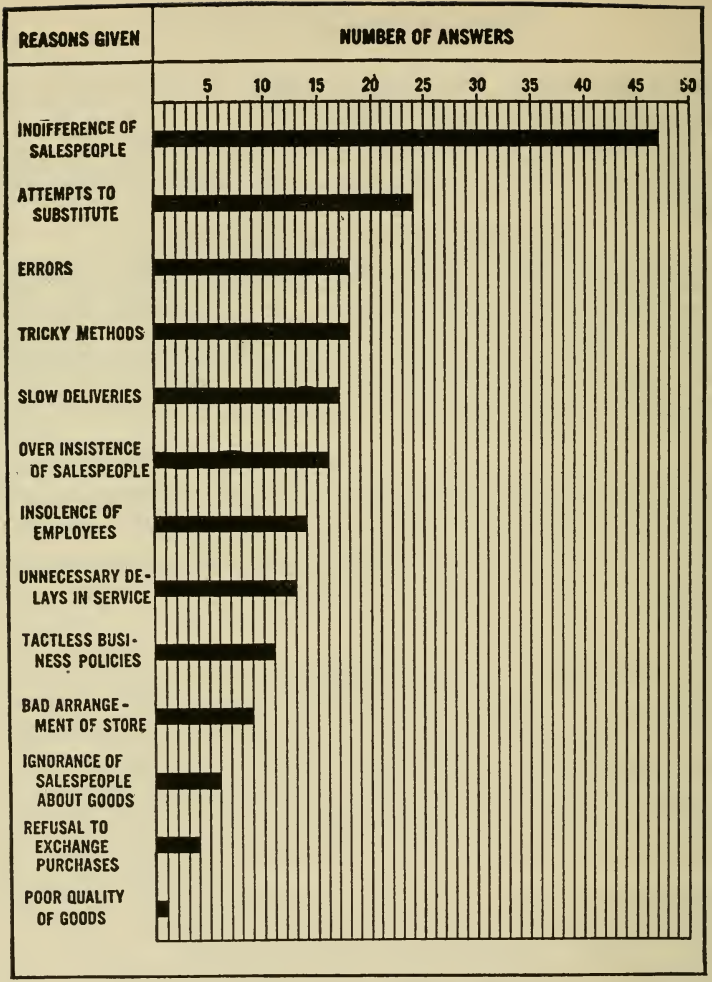
Salesmen and Demonstrators

Their Importance. The success of a range campaign depends upon the men and women behind it. They represent the central station. They make or break sales through their diplomacy. They are the connecting link between the signature line and the prospect's fountain pen. So the sales manager should know how to pick his salespeople.

Women can best conduct the demonstrations and instruct the new owners in electric cookery. Few women feel that men know anything about this art. And fewer still will permit a man to tell them how to cook. Both salesmen and demonstrators should completely read this book for it does not contain a fact which will not help them in their work.

The Salesman. A successful range salesman *must first know salesmanship!* Moreover he should be a higher-type of man than the salesman behind the counter. He must know the construction, operation, service and product of the electric range and other cooking devices. He must know the cooking rate and how it is figured; how this low rate is justified; how to cook some of the simple popular foods and the advantages and prices of all other electrical appliances. Furthermore he ought to know something about housekeeping, home-making and domestic routine to be able to make a human appeal to women buyers.

In selecting salesmen study their attitude of mind. Learn if they think clearly, cleanly; are healthy in body; can inspire confidence. Learn if they like to sell; learn the possibility of their



WHY STORES LOSE CUSTOMERS

This interesting chart illustrates specific reasons given by 100 intelligent persons for withdrawing their trade from retail shops. A significant fact worthy of note is that the commonest reason is indifference of salespeople while the poor quality of goods is the least common reason. Reproduced from "Making Your Store Work for You" published by A. W. Shaw Company

becoming electric range *enthusiasts!* Remember that men do best in the work they like best. And the man who is enthusiastic in his work will naturally win people through his enthusiasm which is always contagious.

One of the first requisites of a salesman is courtesy. He should *always* be considerate, respectfully polite, even subservient and always ready to do any reasonable thing to please. Another requisite is a pleasing appearance. He must be clean-shaven, well-dressed. His appearance often governs the degree to which he is liked, and the influence he can exert on his prospect. An unshaven, slovenly-dressed salesman cannot inspire confidence in any woman.

He must be diplomatic. Opinions, tastes, interests and viewpoints differ. So he must (ostensibly at least) conform to the prospect's ideas and make her believe that he thinks she is right. He should take it for granted—*have it in mind as a permanent thought*—that she is going to buy. One person can be unconsciously dominated by another in thought. A person often develops the attitude of mind, thought and opinion of the one talking to them. The salesman must therefore be confident of the sale. This thought in turn will breed confidence in the prospect's mind.

He must be enthusiastic and cheerful. Someone has said: "A *green* salesman will make some sales—but a *blue* one hasn't a chance!" He must be frank. If a customer asks whether electric cookery is more expensive than fuel cookery, he should admit that it is *in actual fuel cost.* She will believe him and have a corresponding faith in everything else that he tells her. He must not be egotistical. He must not use superlatives and give the impression that the electric range is the greatest thing in the world. He must remember that modesty by its rarity com-

mands attention and influences through its fascination. Boasting is repulsive to intelligent people and the salesman must not talk too much or appear to monopolize the conversation.

Before a campaign begins it is advisable to have the salesmen and demonstrators study the electric range and read this book thoroughly. Moreover it is a good policy to direct, edit and approve the salesman's selling talk before he uses it. In this way the sales manager will avoid having his men make erroneous statements during sales.

To "sell" *a salesman* on electric cookery is one of the most important steps in a range campaign. Many central stations have either established or sent their salesmen to a cooking school to learn the fundamentals of preparing food. In reality a salesman is selling cookery and the more he knows about it the more successful he will become.

A course like this not only makes the salesmen more familiar with the range and the better food it produces but it stimulates interest and creates confidence that no salesman can instill in his prospect when he lacks it himself. An analysis of unsuccessful electric range salesmen shows that they themselves were not absolutely "sold" on electric cookery.

One prominent central station employs a number of college students from a nearby university during the summer months as "prospect locators." The student is paid so much an hour for his time and a certain commission for range sales. He follows up leads with personal calls, invites the women down to the show room, making a special appointment for them to call at a certain hour on a certain day. If a woman does not come he telephones her and makes another appointment. This procedure is followed until he gets her into the salesroom and into the hands of a demonstrator.

The Demonstrator. Both classes of demonstrators—the ones who teach the woman in her kitchen and the ones who conduct the public demonstrations—should know the principles of domestic science; the advantages and faults of all the present-day cooking devices; the cooking rate; how the bills are figured; the technicalities of electric cookery—*and how to talk diplomatically to women!*

When selecting demonstrators, remember that an attractive and intelligent woman with a winning personality will inspire confidence and create the best impression among her audience. Experience has shown that it is an excellent practice to secure local women who are more or less known in the community in which they are to give demonstrations. Their initial work with friends will be of unusual advantage.

The demonstrator's work should be carefully planned and her talk written and standardized in collaboration with the sales manager. Her work is described in detail under *Displays and Demonstrations*, page 94.

The home demonstrator should call on a new range owner at the time the service is turned on—and *before* the housewife has had an opportunity to cook a meal. This demonstrator follows closely the instructions under *Educating the New User*, page 175. She must know how to influence without flattery; teach without criticism; educate without insult; instruct without command and always bear in mind that "*the customer is always right.*"

Compensation. During the first few weeks of a range campaign a great deal of missionary work is necessary. Therefore a salesman will often work assiduously and have nothing tangible to show for it. He therefore cannot profitably work on commission alone. He may often be discouraged to a certain extent, so some

genuine inspiration is necessary to maintain his enthusiastic spirit, his aggressiveness and his untiring sales effort. This can not be accomplished by a commission alone. Therefore it is best to pay range salesmen both a salary and a commission—a small salary to support him and a commission to inspire him.

Range and Parts, Stock

Adequate Stock. Trying to sell ranges from a catalog is a poor and precarious policy. It can be done, but it is unsatisfactory to the prospect-purchaser, is ofttimes a serious obstacle to the salesmen and always an example of weak service which breeds a negative impression.

Two important factors of a sale are: The actual demonstration of the range and its immediate delivery. Very often when a range has to be ordered from the manufacturer in a distant city and the purchaser is obliged to wait from one to four weeks for delivery, she loses her interest, thinks she would like to have a new dress or something else instead of the range and she cancels her order. So an adequate stock—with several models on the floor—is necessary in the successful merchandising of electric ranges.

Types and Makes. The majority of central stations prefer to sell one manufacturer's line because it is more satisfactory to become thoroughly acquainted with one make than superficially acquainted with several lines. Other advantages are in the standardizing of the ranges of the town and in securing one-time delivery of and larger discounts allowed for carload orders. Such a policy also minimizes and simplifies the repair parts, stock.

But there are two distinct types of electric ranges: The regular type and the automatic type. The best plan is to carry a stock of

each as some women may have a decided preference. Women are often inclined toward the higher-priced ranges which should be borne in mind when placing initial orders. They view cheaper electric ranges as they do the cheaper automobile. It has been found that when a woman has been thoroughly sold on the idea of electric cookery she wants the best range on the floor—with white enamel splashers, trimmings and other features.

Commercial managers have asked why manufacturers make so many different types of ranges; why they did not standardize on two or three types. Answer: They do this because the demand exists. The housewives in different communities have different customs. For example, the cabinet type range—with medium-height oven—predominates in the big city. In the small town, women prefer the low-oven range—probably through custom more than for any other reason. Then, other women like the elevated oven. Some want two ovens. So the demand is there—and the manufacturers must meet it.

Repair Parts, Stock. As prompt and efficient service is highly important, the Service Department should carry at all times an ample supply of range parts: Surface and oven units, switches, fuses, resistance wire for repairing units, nuts, bolts, etc.

IT IS unwise for a range manufacturer's salesman to criticise or disparage a competitor's range because it has a cooker, an automatic control or some other attachment which his range does not have. All such features are legitimate. All have a purpose. All have a right to their place on the range. Moreover a salesman's company might adopt one or all of these features one day and he will have a difficult time overcoming the things he has said in the past.

Displays and Public Demonstrations

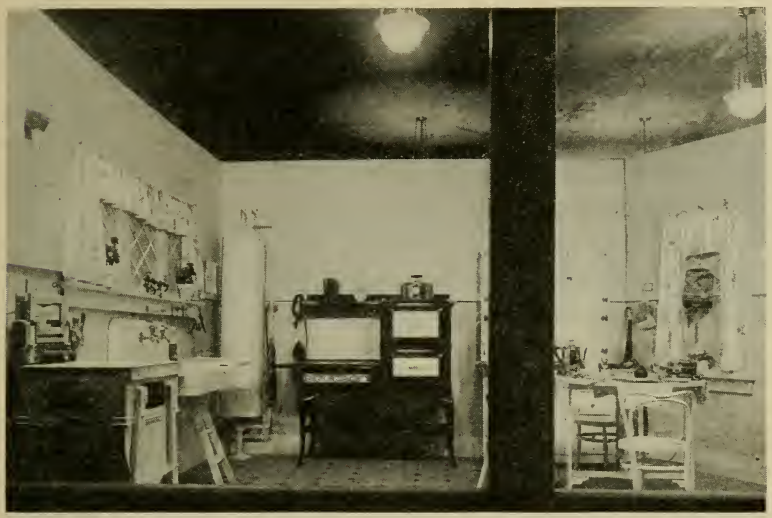
Variety of Displays. Regular range displays should be established in the salesroom and its show windows, restaurant windows, show windows of vacant stores, range sections of hardware and department stores and temporary displays in home-furnishing exhibitions, electrical shows, carnivals and county fairs.

Announcements of coming events should be closely watched and every opportunity taken to loan ranges to church bazaars, Red Cross workers, food conservation exhibits and demonstrations of food and house furnishing products by traveling staffs of large manufacturers. This is all good advertising.

Show windows of vacant stores can usually be rented at low cost. A neat range display should be put in and changed at least once a week. Such a window should include cards which tell the reader that information and advertising may be secured at the main salesroom of the electric company. It is a good plan to sell a range to the prominent restaurants and get them to use it in their window for the first few months. This will not only prove a profitable attraction for them but an invaluable advertisement for the central station.

In such displays as electric shows, carnivals, bazaars and similar exhibits, one or two ranges should be temporarily connected for the cooking of biscuits or cookies which can be served to visitors with tea, hot chocolate or lemonade—depending on the season. During such displays names and addresses should be taken and given to the sales manager.

Salesroom. Several different-sized ranges should be on exhibition—brightly polished and harmoniously arranged. No appliances nor other goods of any kind should be displayed on the



An excellent range window display showing the range in its right "atmosphere"—the kitchen. One of the fundamental laws in the display of merchandise is to show the goods in their proper environment—in the place where they give their service.

range nor placed in the oven. One or two ranges should be connected for demonstrating the operation of the switches and the heating of the units. A good supply of advertising should be nearby and every visitor to the store, irrespective of his or her interest in the electric range should be given a folder.

Show Windows. The show window is ten times as valuable as any space in the store. The purpose of a show window is to attract the eye, create interest and get the passer-by to come into the store. Therefore one of the best ways of making a window produce results is to include a large readable card offering some "free special" booklet, folder or novelty to visitors.

Several years ago, a large department store learned that if they could get a woman into the center of the store—have her walk by a number of bargain counters—she would invariably make a number of purchases. So they established a plan for a week or ten days whereby they "sold" brand new $5 gold pieces for $4.90 from 8:30 a.m. until 2:00 p.m., at the office of their cashier on the top floor.

To get to the elevator the women had to walk from the front to the back of the store and pass a number of bargain sales prominently displayed and advertised by large cards. Thousands of women came to the store to take advantage of this offer and sales were very greatly increased.

During the range campaign the show windows should be given exclusively to range displays which should be changed at least twice a week to maintain interest. The more thought and money expended in making the window attractive, the more effective it will be in drawing people into the store. Remember that a display is good or bad according to whether the goods *or* the setting predominates.

If the eye is instantly attracted to the range the window is a success. If the setting is jumbled, filled with a number of appliances and no object in particular is remembered after the passer-by leaves the window, it is not a success. Manufacturers are glad to assist in suggesting new displays and ofttimes furnish material such as streamers, window cards and similar pieces.

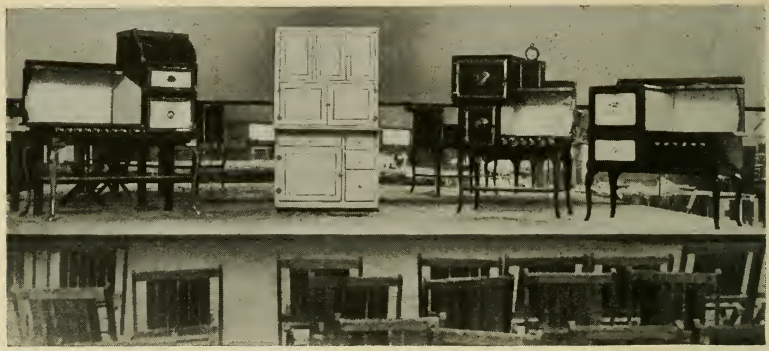
A vital factor in a window display is Atmosphere. In other words a range should be shown in a kitchen setting or scene. Moreover displays should be very simple and dressed with the one purpose of driving home one point at a time. The less in

Range demonstration room of the City Electric Lighting Co., Vincennes, Ind. showing a "Prospect-Demonstration" in progress. These ladies who were interested in electric cookery brought their own dough and did their own demonstrating. This plan is one of the most effective ways of proving the many advantages of the range which is ofttimes found necessary during the first few weeks of a campaign.

them the more effective they will be. Some action or motion also attracts more people than a "dead" display. Moreover a window should be brilliantly lighted at night because the average person's mind is relaxed and more sensitive to impression, because a large number of people like to go "window shopping" and because the displays stand out much better than they do in the day-time.

Even a small store will gain trade by intelligent attention to its windows. The fact that large merchants have invested fortunes in window fittings and can afford to maintain expert help is no reason why the small merchant should neglect his windows. A bright, fresh, simple but effectively conceived window will help not only the appearance but also the sales in any electric shop.

Demonstrations. The first demonstration should be the opening feature of the campaign. There are two ways to get an in-



Demonstration platform of the Utah Power & Light Company's Cooking School where the lectures were delivered and the general cooking instructions were given.

terested audience for this first exhibition. One is to issue special invitations to a selected list of promising prospects. The other is to run an admission ticket coupon in a newspaper announcement the night before the demonstration. This coupon requests the name and address of the person attending. These names are kept by the sales manager for his file of live prospects.

If a special invitation letter is used it is a good plan to impress upon the addressee that this demonstration is limited to a very exclusive few and that she was chosen as one who would probably be more interested than the lady next door. If the sales manager is desirous of having a certain few prominent women attend, he should have a salesman telephone and extend to them another cordial invitation on the morning of the demonstration.

Before the ladies begin to arrive, it is a good plan for the demonstrator to actually bake a cake or a loaf of bread to become acquainted with the voltage. A slight variation will make a great difference in the time of baking. If the demonstrator is not ac-

quainted with the range and how quickly and efficiently it is working she will probably underbake or overbake her food, become confused and give the harmful impression that the range is "funny" or that she does not know what she is doing.

The demonstrator should have her pans greased and her cooking accessories handy on the table. A pot of flowers might be placed on top of the oven to show that virtually no heat escapes and that plants can live in close proximity because of the non-consumption of oxygen and the non-radiation of heat.

Specific Action. The demonstration should start promptly when scheduled. The demonstrator begins with a preliminary talk on the advantages of electric cookery—its better cooked food, cleanliness, comfort, coolness, safety and economy. Then she describes the fundamental construction of the range—*omitting all technicalities!* Next she turns on the oven switches and finishes the preparation of the food which should be partially prepared before the women arrive.

The better plan is to cook dishes which women usually dislike to try because of the possibility of poor results. As the demonstrator is heating the oven, she explains its scientific construction, operation and excellent results. By this time it will be heated to the right temperature. She places the food in it and continues her talk explaining the new method of oven cookery—how one cooks with little water, how it is unnecessary to watch the food and how different articles are cooked—more deliciously, more digestibly and more nourishingly. See *Better Cooked Food*, page 135.

She explains the saving in the shrinkage of meats, the unusual moisture retained in baked bread and cakes, and the nourishing values which are conserved in vegetables and soup.

Next comes a description of how the range fits into the modern

home today; how it is in keeping with the telephone, electric light, electric cleaner and other domestic devices. Then she explains the cooking rate, cost of operation and introductory offer—if one exists. By this time her cooking will probably be finished. Whatever she has baked—cake, cookies or biscuits, should be served with some sort of liquid refreshment.

Campaigns and Sales Ideas

Importance. Campaigns should be held periodically to maintain interest in electric cookery and stimulate range sales. Such a campaign should be an accelerator rather than spasmodic merchandising effort, for the latter will create intensive interest only to be followed by a depressing reaction when sales will be practically dead until another burst of sales enthusiasm is staged.

Activities. Before the initial campaign is begun ranges should be ordered and every price and selling policy determined. Sales talks and demonstrator's lectures should be written, standardized and memorized and lists of prospects compiled by the sales manager.

The attractive feature of each campaign will be the demonstrations and the purpose of all advertising should be ostensibly to get the ladies to attend. If it is found they are not easily interested, some novelty — a kitchen utensil, a cook book, or something else—should be used as an inducement to have them attend the "cooking *lectures*."

No matter how difficult it will be to first get women interested in electric cookery, they will eventually be enthusiastic when they learn of its scientific method, cleanliness, and safety.

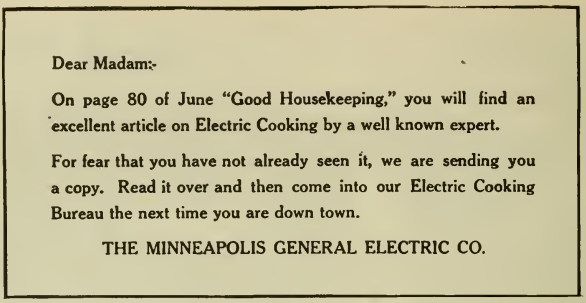
Each campaign should be advertised to extend over a definite (limited) period which will put a *time limit* on whatever special

An unusual demonstration idea which proved effective to a utility. This truck was driven throughout the territory, to country fairs, carnivals, and similar places where a cooking demonstration would attract considerable attention. The sides of the truck were folded up at night.

offers are made. Women *not* taking immediate action in attending a demonstration or buying a range will lose out on the "special inducements" offered.

Sales Ideas. The following sales plans have been used by prominent central stations and have proved practicable and successful:

1. A campaign put on by the Minneapolis General Electric Company was entitled "The House Next Door." The object of this campaign was to concentrate sales effort on the homes in the immediate neighborhood of a range installation.



Dear Madam:-

On page 80 of June "Good Housekeeping," you will find an excellent article on Electric Cooking by a well known expert.

For fear that you have not already seen it, we are sending you a copy. Read it over and then come into our Electric Cooking Bureau the next time you are down town.

THE MINNEAPOLIS GENERAL ELECTRIC CO.

Sample of a postcard which was mailed periodically to the customers of the Minneapolis General Electric Co. It directed attention to certain current magazine articles on Electric Cookery, Kitchen Efficiency or some allied subject. It is a live, timely idea and assists in maintaining interest in the electric range.

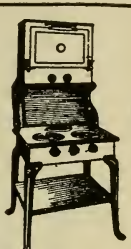
This was done for two reasons: First, because additional transformers would not be necessary; second, because the first range owner is usually willing (if not proud) to talk about her range to her neighbors.

2. The Edison Electric Illuminating Company of Boston concentrated effort on architects, builders and officers of home building associations, with the result that the greater percentage of new homes and apartments in Boston, built during the three years before building restrictions became effective in 1917 were equipped with electric ranges.

Whenever an installation was going in, the Edison Company erected an illuminated billboard in front of the building upon which was stated that the building was modern in every respect and therefore equipped with electric ranges. They would also advertise the building in the real estate sections of Sunday papers.

This billboard and Sunday newspaper advertising had a threefold purpose: First, it won the good-will and co-operation of the architects; secondly, it assisted the owners in renting and third, it educated the people of Boston to the fact that new buildings were not modern unless *they were equipped* with electric ranges.

LABOR SAVING



An electric range delivers heat in its perfect form—No fuel, no flame, no dampers, no constant watchful eye needed.—You simply turn a switch.—The Clock and Switch Key regulate your entire cooking.

Besides these four weekly Prizes, The Edison Co. offers two Special Prizes of $10 and $5 for the best two Jingles printed for them, to be awarded to writers living on their lines. Prizes to be applied, first, toward wiring their houses on The Easy Payment Plan, second, if users of Electricity, toward the purchase of Merchandise. Prizes awarded at close of Contest.

The rooster crows at midnight, the night is turned to day.
We've thrown the tallow candle and the kerosene away;
The stars have ceased to twinkle, the moon has hid her face,
For the Edison Electric Company illuminates the place.
W. A. Gon.

The old coal-hods and the kerosene-cans
On the race to the junk-heap have joined hands.
For the electric range cooks our meals today,
And the modern lights have come to stay!
Annie.

Quoth jolly Joe: "All blessings flow,
From Heaven above to Earth below;
That guerdon bright, the gift of sight,
Makes man enjoy Electric Light."
Experience L

No dust from ashes flying 'round, no ashes now to sift,
No wood to saw and lug upstairs, no heavy coal to lift,
My work made light and wifey's, too, by our electric range,
It's cheaper, too, than buying coal. Try it. Make the change.
Sherlocko.

The Edison Electric Illuminating Company of Boston

One of the newspaper advertisements of The Edison Electric Illuminating Co. which described their "jingle" contest. This advertising idea created unusual interest in electric cookery throughout their territory.

3. Another company instead of holding typical demonstrations established a series of "Electric Luncheons." Special, personally-written invitations were sent to a select prospect list—women of such a class as would represent possible buyers. Luncheons were served to an average of thirty or forty women. The cookery was done on the electric range following which were talks by the demonstrator and the sales manager. A strong effort was made not to let one woman escape without ordering a range outright or signing for at least a trial installation.

4. The City Electric Lighting Company of Vincennes, Indiana, organized the Ladies' Aid Society of the First Christian Church into six committees, the membership of each committee being made up of women residing in different parts of the town. A special room was fitted up for them by the central station and furnished with heating, lighting and cooking energy gratis. The Company also furnished ranges and all necessary accessories for

the demonstrator. Each day in the week one of the six committees took charge, having their friends bring bread or pastries already prepared and ready to go into the oven. The visitors did their own baking and demonstrating, under competent direction. At the end of the week the central station was assured that nearly every woman in the town had actually operated one of the electric ranges.

All of the food cooked was sold to members of the church and the money was turned over to a fund for charity work. The general manager of the company states, "We found everybody talking about the ranges and we actually sold quite a number during the demonstration. For two months after this self-demonstration was staged, sales were made to the friends of the Ladies' Aid Society."

5. After a central station has installed several commercial bake ovens in bakeries or grocery stores, a good plan is to supply them with little tags of some bright color which can be attached to each loaf. The message will say that this bread is different from any other bread they ever tasted because it has been baked electrically—by the cleanest and most sanitary method. This will not only prove to be good advertising for the central station but such excellent publicity for the bakery or grocery store that they usually will co-operate in absorbing one-half of the expense of printing the tags.

6. At an Electrical Show in its city a central station had a large exhibit of electric ranges and held cooking demonstrations in which women of five different nations participated in native costumes. They cooked their native dishes. Not only did they attract large crowds with their odd-looking costumes but they passed out little baked dainties and folders, and secured names of interested visitors.

7. Another central station holds profitable contests periodically. The first one they staged was a contest in which they offered three prizes to school children for the best essays on electric cookery. The first prize was $25, the second $15 and the third was $5. Every child in the town enthusiastically wrote a paper on it.

Prospects and Follow-Up Work

Classification. Scientific electric range selling requires a systematic division or classification of the field with a prescribed merchandising plan for each class. The character of effort is determined by the financial condition and mode of living of each class, and its possible knowledge of and attitude toward the electric range. Three classes of Prospects are to be considered:

Class C—"Poor" Prospects
Class B—"Good" Prospects
Class A—"Interested" Prospects

So the sales work divides itself into three parts: Combing the entire town for the complete classification of these three kinds of prospects; then watching Class C Prospects become Class B Prospects and educating Class B Prospects to become Class A Prospects.

Class C Prospects. The Class C Prospect is a member of a poor family who at the present time cannot afford to purchase an electric range—no matter how attractive the plan of payment offered—and despite the fact that she has electric service. Any real sales effort directed toward such a prospect would largely be wasted. But it is a good plan however to send such a woman an occasional piece of advertising and to keep in touch with the better ones as they are likely at any time to have sufficient money with which to buy a range. Thus they would become Class B Prospects.

Class B Prospects. The Class B Prospect is a woman who at the present time is financially able to purchase a range. Thus she is a "good" prospect and one to whom a salesman can profitably send advertising. He should interest her to the point where

she will make an inquiry of some kind so he may put her in Class A and concentrate personal sales effort upon her. The names of Class B Prospects can be compiled from club membership lists, blue book, marriage license reports, and through company employes. In educating these Class B Prospects, it is better to send several pieces of advertising before a personal call is made —and each piece should try to solicit a request for further information. If such an inquiry should be made this makes the person an "interested" prospect which puts quite a different aspect on the situation and gives the salesman the desired opportunity (or excuse) for making a personal call.

Class A Prospects. Class A Prospect is a woman who has given her name at a demonstration, returned a coupon of a newspaper advertisement or in some other way has signified that she is interested in electric cookery. She is different from a Class B Prospect in that she has expressed herself as being receptive to information on this subject. The salesman immediately begins to educate, influence and "sell" her by sending personally-written sales letters and finally telephoning her for a definite appointment to call. The salesman must remember that individual buying varies as greatly as people; so his methods, plans and ways of working must be adapted to each individual prospect.

The monied woman buys the electric range for the better food which it produces. The middle class woman who does her own housework has a greater appreciation of the comfort and convenience. Thus sales talk must conform to the person. See *The Prospect*, page 128.

As hotels, restaurants, clubs and similar institutions have the money and are really Class B Prospects, it is well to have a card index of these commercial cooking prospects and solicit

them first with personally written letters and then later by salesmen. These letters should feature the many advantages of electric cooking, rate, concessions and other attractive points. A commercial cooking demonstrator for chefs, managers and owners also proves a stimulus to sales.

Sales Development

General Work. Immediately after the first campaign has been well started, the general promotion of electric cookery should begin. Plans should be drawn and a direct effort made for the complete cultivation of the cooking field which divides itself into three classes: Domestic, Commercial and Miscellaneous.

Domestic work is developing the sale of ranges in homes. Commercial effort is in selling the different kinds of restaurant equipment to institutions doing large quantities of cooking. Miscellaneous activity is in promoting the sale of portable hot-plates and small lamp-socket ovens in various places. See paragraph on *Miscellaneous Activity*, page 118.

The electric range must be kept continuously before the public eye. Everyone in the town should read at least once a week some range advertisement or notice in the local papers. They should see a range every time they go downtown, attend a church bazaar, go to a carnival, visit the Electric Shop or the hardware store. They should read about electric cookery on the menus of restaurants and tea rooms, and on the backs of their light bills. In fact everywhere they go they should see a range or hear something about electric cookery. This work will create consumer *interest* which will eventually become consumer *acceptance* and then consumer *demand.*

Electric Cooking School of the Union Electric Light & Power Co., St. Louis, which was in charge of a well-known domestic science instructor and one assistant. At every third lesson, about 25% of the class actually prepared food and cooked on the ranges while the others watched and listened to the lecture and the instructions.

Domestic Field. The cultivation of the domestic field is through:

Public demonstrations to which invitations are issued in newspaper advertisements or by personal letters to a special list.

Frequent newspaper advertisements to maintain general interest.

Electric cooking publicity news in the reading columns of the local papers.

Weekly or semi-monthly sales letters to the best prospects.

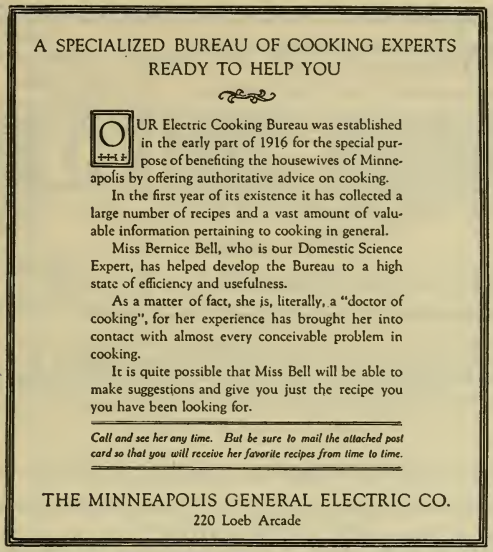
Cookery Service Bureau which furnishes electric cooking recipes. They can be printed on the backs of monthly light bills or post cards and mailed to both range owners and prospects.

A school for the education of housewives and domestics.

Ranges exhibited in every possible place: Bazaars, exhibits, fairs, "shows," department, hardware and other stores and in show windows and similar places.

Lectures by a range salesman illustrated with lantern slides, charts, pictures and posters.

The public demonstrations and the exhibitions of ranges are



A SPECIALIZED BUREAU OF COOKING EXPERTS
READY TO HELP YOU

OUR Electric Cooking Bureau was established in the early part of 1916 for the special purpose of benefiting the housewives of Minneapolis by offering authoritative advice on cooking.

In the first year of its existence it has collected a large number of recipes and a vast amount of valuable information pertaining to cooking in general.

Miss Bernice Bell, who is our Domestic Science Expert, has helped develop the Bureau to a high state of efficiency and usefulness.

As a matter of fact, she is, literally, a "doctor of cooking", for her experience has brought her into contact with almost every conceivable problem in cooking.

It is quite possible that Miss Bell will be able to make suggestions and give you just the recipe you you have been looking for.

Call and see her any time. But be sure to mail the attached post card so that you will receive her favorite recipes from time to time.

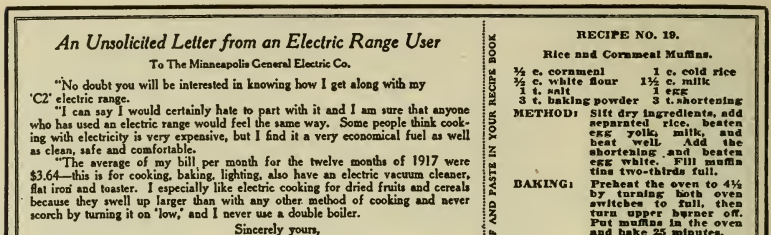
THE MINNEAPOLIS GENERAL ELECTRIC CO.
220 Loeb Arcade

Page from the Cooking Bureau Folder published by the Minneapolis General Electric Co. It described the purpose and advantages of the Bureau and solicited cooking questions and names for the recipe service.

described under *Displays and Demonstrations*, page 94. The newspaper advertisements, sales letters and publicity notices are described under *Advertising*, page 150.

The monthly recipe service is a plan that has been promoted for a long time by the Minneapolis General Electric Company in which they have maintained a cooking service bureau that has not only printed recipes on the backs of their monthly light bills but helped solve the cooking problems of any woman requesting this co-operation.

This bureau has not only rendered a real service to the pur-



An Unsolicited Letter from an Electric Range User

To The Minneapolis General Electric Co.

"No doubt you will be interested in knowing how I get along with my 'C2' electric range.

"I can say I would certainly hate to part with it and I am sure that anyone who has used an electric range would feel the same way. Some people think cooking with electricity is very expensive, but I find it a very economical fuel as well as clean, safe and comfortable.

"The average of my bill per month for the twelve months of 1917 were $3.64—this is for cooking, baking, lighting, also have an electric vacuum cleaner, flat iron and toaster. I especially like electric cooking for dried fruits and cereals because they swell up larger than with any other method of cooking and never scorch by turning it on 'low,' and I never use a double boiler.

Sincerely yours,

MRS. T. O. SCHRODER."

3418 Humboldt Ave. N.

ASK FOR MISS BELL'S FOOD CONSERVATION SUGGESTIONS

TEAR OFF AND PASTE IN YOUR RECIPE BOOK

RECIPE NO. 19.

Rice and Cornmeal Muffins.

½ c. cornmeal	1 c. cold rice		
½ c. white flour	1½ c. milk		
1 t. salt	1 egg		
3 t. baking powder	3 t. shortening		

METHOD: Sift dry ingredients, add separated rice, beaten egg yolk, milk, and beat well. Add the shortening and beaten egg white. Fill muffin tins two-thirds full.

BAKING: Preheat the oven to 4½ by turning both oven switches to full, then turn upper burner off. Put muffins in the oven and bake 25 minutes.

Electric Cooking Bureau

The Minneapolis Gen. Elec. Co.

Main 6100 T. S. 44 210

Sample of Recipe Form which was mailed periodically to a list of range prospects and owners by the Minneapolis General Electric Co. Note that the left side contained a letter of commendation, the right side, the recipe. This idea was the basis for cultivating the electric range field and was the indirect result of the majority of the range sales.

chasers of the electric range in teaching them to prepare new dishes and become better cooks, but it creates an unusual interest in the minds of prospects. This service has been one of the chief factors in developing the domestic range field in Minneapolis.

A permanent cooking school was established about two years ago by the Union Electric Light & Power Company in St. Louis. The purpose was to educate the housewives and domestics in the art of cooking electrically, irrespective of electric range ownership. A large advertisement was placed in the local papers announcing the school and the details of the plan of enrollment. It stated that $7.50 would be paid every pupil completing the full course of ten lessons. So many women flocked to take advantage of this offer that the capacity of the school was filled the second day after the advertisement appeared. The company found it was so easy to obtain pupils that the offer of $7.50 was later withdrawn.

Classes were held every morning and afternoon—fifty members

Brighter and Happier Hours in the Kitchen
Made Possible by the
ELECTRIC RANGE
THE MODERN WAY
Free School of Practical Cookery
To be Conducted by
Chef Wyman
A Culinary Artist of International Fame
HE WILL TELL YOU HOW
To cut down the size of your food bill
To improve the taste of food served on your table
To conserve the nutriment in the food you cook
To cook in a cleaner and more wholesome atmosphere
To save time, labor and fatigue in kitchen work
To eliminate cooking failures by the use of regulated heats
To have more leisure hours for rest and recreation
To reduce the high cost of living
Demonstrations at 2:30 p. m. Every Day to Saturday, June 30th inclusive
To be held at 303 Santa Monica Boulevard
Southern California Edison Company

Newspaper announcement of the Southern California Edison Company's Cooking School which was in charge of a well-known chef. This school traveled from town to town of the territory in a special railroad car completely equipped with a model kitchen and range showroom. The demonstration announced in this particular advertisement, however, was held in one of the company's showrooms.

to a class and each class attended three times a week. At every third lesson, members of the class would do actual cooking. About twelve women cooked in each class while thirty-eight watched and listened to the lectures. The school was very successful and obtained excellent results in developing the domestic field in St. Louis.

The Southern California Edison Company—which has more electric ranges on its lines than any other central station in the

world—maintains a "School of Practical Electric Cookery" which travels from town to town of the S. C. E. territory, and gives cooking courses and public demonstrations. It is conducted under the management of a well-known chef and has proved very successful in the promotion of the electric cookery idea.

The plan of having a salesman prepare a lecture on electric cookery which is illustrated with lantern slides has been tried out effectively by a number of central stations and some manufacturers. Whenever possible, the salesman secures a place on the program of church socials and bazaars, conventions, women's club meetings, benefits and similar affairs where he will have an opportunity to talk to a number of women. This talk should be well illustrated with interesting slides which can be secured from range manufacturers or the Merchandising Service Department of The Society for Electrical Development.

Architects and Builders. In the majority of electrically-served communities today the architect, contractor and builder do not recognize the electric range as standard equipment for the modern home as they do not know it is practicable from every viewpoint. Therefore when a central station begins the promotion of electric cookery, one of the greatest fields for education is among the architects and builders. They must be taught that the electric range is practicable, its cost of operation well within the means of the average family and that a new home is not modern today unless it includes an electric range. The apartment house builder either erecting for permanent ownership or speculation must realize that he should install the most modern devices or the apartments will not rent, nor will the buildings sell.

One of the first moves in the promotion of the electric range is to give an electrically-cooked dinner to the architects, contractors and officers of building associations. This should be given at one

of the prominent hotels or in a large room of the central station offices. It should be followed by "facts-and-figures" talks by manufacturers' salesmen and the central station sales manager. These talks may include the following subjects:

Progress of electric cookery today
Practicability of the range
Advantages of electric cookery
Description of the cooking rate
How lighting and cooking current can be bought at wholesale through one master meter.
The economy of adequate wiring for future use of a range when lighting circuit is being installed.
The advantages to the owner of the building
The advantages to the housewife
Advantage of the range in apartments

Then a range should be sold to every man present before he leaves the dining room because nothing will convince a person of the superiority of electric cookery more than having a range in his own home. Such a dinner will do more to lay the foundation for future sales than any other activity.

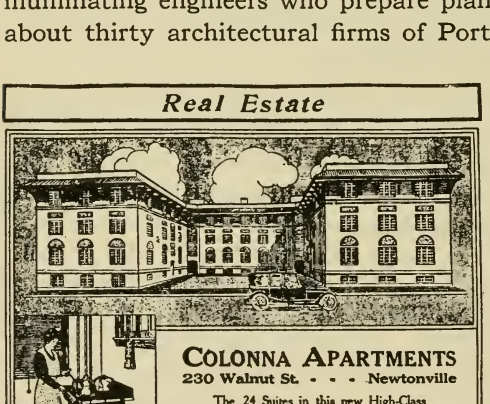
Securing their Interest. The foundation for the general development of electric cookery in a city is the confidence and co-operation of the architects. So range manufacturers, central stations and The Society for Electrical Development have been educating architects and builders for the past two or three years.

Both the Society and the manufacturers have taken space in Sweet's Catalogue, the buying guide of the architectural trade. They have published booklets and folders and have had men work directly with the building trade.

One central station has concentrated sales effort on the architects and today a large number of the new apartment houses in its city are equipped with electric ranges. After these ranges

were sold the central station placed advertisements in the real estate sections of the Sunday papers with a double purpose in mind. First: To let other architects and builders know that certain buildings were installing ranges and second: To advertise the building and give it added value to facilitate the renting of the individual apartments.

Service Bureau for Architects. The Portland Railway, Light & Power Co. of Portland, Oregon, has for several years maintained an Illuminating Engineering Bureau as a division of the Commercial Department. This bureau is in charge of competent illuminating engineers who prepare plans and specifications for about thirty architectural firms of Portland. They also check and criticize wiring and illuminating plans for other architects and builders. This work has been done without expense to the architects and has provided them with proper wiring plans, particularly for the larger buildings which made it possible for wiring contractors to bid on the *same* basis for wiring contracts.


Real Estate
COLONNA APARTMENTS
230 Walnut St. - - - Newtonville
The 24 Suites in this new High-Class Apartment Building are completely equipped with Edison Service, including
24 ELECTRIC RANGES
Three to Six-Room Suites at from $37.50 to $65.
Apply at 227 Walnut St.
The Edison Electric Illuminating Company of Boston

Sample of range-apartment advertisements of the Edison Electric Illuminating Co., Boston. The idea behind this campaign was the same as the St. Louis plan. These advertisements appeared in the Real Estate columns of the newspapers, generally in the Sunday issues.

It was found when this bureau was established that the archi-

tects had vague ideas on illumination, proper distribution of circuits, carrying capacity of wire and the proper way to prepare specifications which would be understood by the electrical contractors.

At first the work was confined to office buildings, hotels and other large buildings but was gradually expanded to include apartment houses and better class residences. In the past two years the erection of large buildings decreased in number and this bureau gradually encouraged the architects to permit it to assist them in writing wiring specifications for residences, apartment houses, stores and smaller premises. This work of course always included an adequate number of "convenience outlets" and ample wiring for ranges and water heaters. Today the majority of the architectural firms of Portland specify electric ranges in practically every new building. This shows that the architects can be gradually educated to the electric range idea.

Ranges in Apartments. The electric range is even more advantageous in an apartment kitchen than it is in the kitchen of a residence. As a rule the apartment kitchen is small and lacks sufficient ventilation. Therefore it demands a clean, cool, convenient and compact cooking device.

Apartment tenants move frequently and there has to be something new, better and different in the new home to attract them to it. The electric range is this "something different." Moreover it saves the apartment house owner from frequent redecorating expense which the new tenant often insists upon. It also reduces the fire hazard.

When a builder installs electric ranges he obtains higher rents, more desirable tenants, increases the value of his building and in many instances reduces his fire risk.

Cooking without a Rate. Electric ranges can be sold most readily to new homes—particularly new apartments. If a new apartment house is erected today and fuel ranges installed it will be many years before the central station can induce the owner to install electric ranges. If a cooking rate for individual installations does not exist, central stations can still permit large apartment houses to purchase their lighting and cooking current through one large meter. In recent years, large real estate operators in many big cities have erected buildings of forty or more apartments and have installed electric ranges on such a contract. The contract calls for the purchase of all current used for cooking and lighting, appliances, elevators, laundry equipment, electric cleaners and other electrical devices through one master meter.

The monthly consumption amounts to thousands of kilowatt hours and is so large that the central station can afford to sell the current on a low power rate. The owners in turn either include the cost of the current in the rent or re-sell it at cost or slight profit. When sold at cost or slight profit it approximates the cost of fuel cookery. It therefore makes electric cookery economically practical in towns not having a general cooking rate. The central station can afford—in fact they find a good profit in such a contract. They do not have to read separate meters, keep separate accounts, deliver and collect separate bills. In other words it produces large revenue with small overhead.

One of the largest installations of this kind is in the Hunter Inn, Omaha, Nebraska where fifty-seven electric ranges are installed.

Domestic Science Field. In the United States today there are about 15,000 public and private academies and high and normal schools having an attendance of more than 1,400,000 young women. This offers a tremendous educational field for electric

cookery. A large number of these schools are already equipped with electric cooking apparatus but the field as a whole is surprisingly undeveloped.

The reputation of a cooking school or a domestic science class depends entirely upon its methods. One of the things it is teaching is *the use* of the latest and best apparatus. For this reason alone electric ranges and ovens should be in every cooking classroom today. The advantage to the central station lies in the daily publicity given electric cookery by the pupils. They will learn how to cook electrically and therefore will want electric ranges when they have homes of their own. They will talk about and "sell" the electric cooking idea every day.

Yorkleigh Apartments

4954 West Pine Boulevard

36 Perfectly Appointed Apartments with an

Electric Range

IN EVERY KITCHEN

No modern home is complete without an Electric Range.

Economical—Sanitary—Safe
Modern Convenience—Better Results

Ask us to tell you what the Electric Range means to the busy woman of today.

Bell, Main 3220 Kinloch, Central 3530

UNION ELECTRIC Light and Power Company
12 & S. LOCUST STS.
4911 Delmar - 3028 Kinloch - 3012 S. Grand

MEMBER ADVERTISING CLUB OF ST. LOUIS

Sample of the range-apartment advertisements which were published by the Union Electric Light & Power Co., St. Louis. The idea behind this campaign was twofold: First, it instilled in the minds of both tenants and builders that "no home is complete without an electric range;" second, it added value and popularity to each individual building equipped with electric ranges.

Commercial Service. Large electric ranges, bake ovens, toasters, broilers, plate and food warmers, frying griddles, steam table and coffee urn heaters can be sold to:

Asylums	Colleges	Jails	Seminaries
Bakeries	Cooking Classes	Mines	Ships
Churches	Hospitals	Restaurants	Various schools
Clubs	Hotels	Sanitariums	

The best move to bring about such sales is to give a dinner to the owners and managers and later a demonstration for the chefs at which all cooking is done electrically in the dining room and is followed by talks on electric cookery illustrated with lantern slides or motion pictures. These talks are from the consumer's viewpoint and different from the ones delivered to the architects and builders. They should sell the idea of electric cookery just as it is sold to the housewife. Commercial equipment has advantages which are described under *Commercial Cooking Apparatus*, page 194.

Intensive sales effort should be concentrated on these men before they leave the dining room, and ranges sold for home use. Get them to install a range on trial or on time payments—almost anything to get one in their homes as this will mean the sale of other ranges and aid in the future development of commercial cookery in the town. Remember one range sold will probably lead to the sale of two or three others.

Miscellaneous Activity. Miscellaneous activity can be described as the sale of portable hot-plates and lamp socket ovens and grills to laboratories, studios, doctor's and dentist's offices, light housekeeping rooms and bachelor apartments, buffets, soda fountains and many similar places where a little cooking or heating must be done quickly and in a limited space.

Office and Warehouse Forms

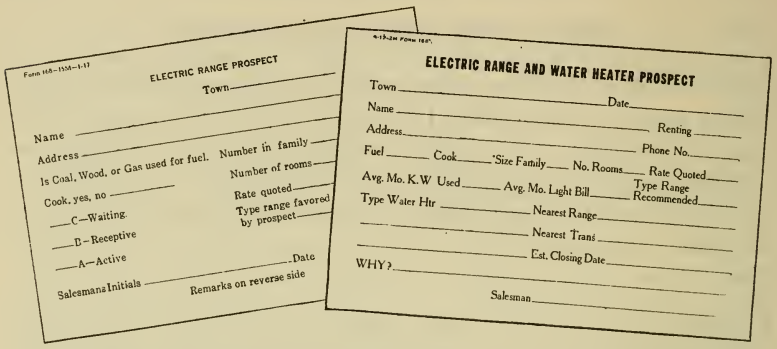
Modern Card System. The central stations which are undertaking range merchandising today should take advantage of the experiences of the pioneer central stations and copy as closely as possible their office and warehouse forms which have been in use long enough to prove their practicability. A complete set of excellent examples of forms which are now in use are illustrated here.

Prospect Card. The range prospect card is one of the most comprehensive of the set. It should contain certain, definite information about the person in mind; facts which will sooner or later help in making the sale. For example:

Name	Kinds and number of pieces of advertising
Address	sent to prospects—dates?
Telephone number	Has attended demonstration?
Number in family	Has friend or neighbor an electric range?
Present fuel used	Installment plan described
Present type range	Type range favored by prospect
Number of rooms	*Apparent reason why prospect will buy.*
Cook?	Salesman's name.
Rate quoted	

On the back of the card should be a history of the progress being made with the prospect. The development of this work has a significent bearing on the actual sale. It is recommended that these cards be kept in two different drawers, one marked "Class B" and the other "Class A" prospects. See *Prospects and Follow-Up Work*, page 105.

Salesman's "Score Card." The purpose of the "score card" is to give the salesman a graphic résumé of his work day by day and can be used by him to determine his efficiency. It can also be



ELECTRIC RANGE PROSPECT

Town

Name

Address

Is Coal, Wood, or Gas used for fuel. Number in family

Number of rooms

Cook, yes, no

Rate quoted

Type range favored by prospect

C—Waiting.

D—Receptive

A—Active

Salesman's Initials

Date

Remarks on reverse side

ELECTRIC RANGE AND WATER HEATER PROSPECT

Town Date

Name Renting

Address Phone No.

Fuel Cook Size Family No. Rooms Rate Quoted

Avg. Mo. K.W Used Avg. Mo. Light Bill Type Range Recommended

Type Water Htr Nearest Range

Nearest Trans

Est. Closing Date

WHY?

Salesman

Two types of electric range prospect cards used by the Texas Power & Light Co., Dallas. The size of these cards is 5½" x 3½" inches.

PLEASE READ THIS AGREEMENT CAREFULLY

Ledger Folio..... Deposit $..... Route No.....

.....

(This Space to be filled at the office)

Application for Electric Cooking and Heating Service

I hereby request the **Twin State Gas and Electric Company** to install electric cooking and heating service in the premises No.. .....**(Street)**

.....(City), owned by.....

and occupied by..... .....as a..... ..

I agree that I will promptly and regularly pay all bills for electricity used under this contract at the Company's regular published rates for the class of service furnished, the amount to be determined by the Company's meter or meters, to which and to the wires and appliances connected therewith upon the said premises free access for the Company's agents shall be had at all reasonable hours.

I also agree to abide by the published rules and regulations of the Company, and that if and whenever I shall be as much as fifteen days in arrears in payment of any bill due the Company for electricity, labor, material or appliances, or shall violate any of the terms or conditions of this contract, the Company may remove its meters, wires and other appliances and appurtenances which may have been placed upon the said premises solely at the Company's expense, without further notice, and because of such default or violation there shall immediately become due and payable by myself to the Company, as liquidated damages and not as a penalty, the minimum monthly payment provided for in the schedule of rates for the unexpired portion of the contract year in which the Company's property is removed.

I agree to take electric service from the Company for a period of one year from the date of this agreement and thereafter until the end of thirty days notice in writing given by one party to the other

Signed at.....this.....day of....., 191..

....

(Business address) **(Signature)**

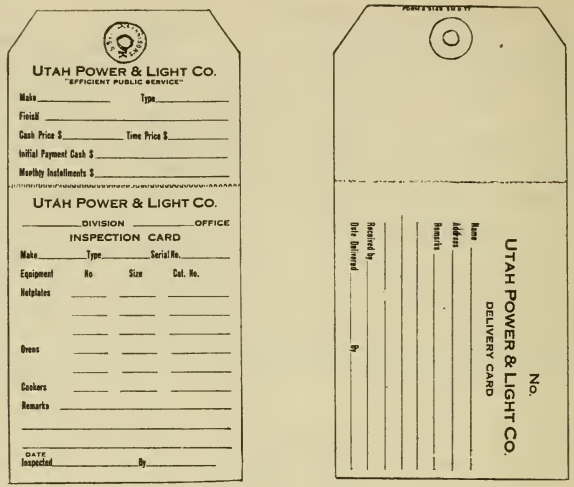
Range Installation Application Card used by the Twin State Gas & Electric Co., Brattleboro, Vt. The size of this card is 6" x 4".

used in reporting to the sales manager in charge. This card shows the number of calls made during the week, names of prospects visited, and whether the salesman "Got attention," "Got interested," "Got chance to close" and "Secured order." It is recommended as an excellent method to determine progress in the sales work of the individual salesman and the general efficiency of the sales organization.

APPROACHED Name	Address	Commodity	Got Attention	Got Interested	Got Chance to Close	Secured Order
1 W.R. Murphy	Mill	Range	1	1	0	0
2 Walter Armour.	"	"	1	1	1	1
3 A.W. Purdue	"	"	1	0	0	0
4 J.W. Morse	"	"	1	1	0	0
5. W.S. Munson	"	"	1	0	0	0
6 J.B. Lo.·g	"	"	1	1	1	1
7 A.D. Zimmer	"	"	1	1	0	0
8 L.F. Betts	"	"	1	1	1	0
9 A.B. Miller	"	"	1	1	1	1
10						
11			9	7	4	3
12						
13						
14						
15						
16						
17						
18						
19						
20						
Total						
Per Cent						

Salesman's "Score Card" used by the Northwestern Electric Service Co., Erie, Pa. The size of this card is about 7" x 3½".

Installation Application. The order to install and the application for service may be combined on the same card as shown on the Installation Application Card illustrated on page 120. If a trial installation proposition exists, the Trial Installation Application may be very simple in form and mimeographed on plain paper. At the end of thirty days or the termination of the trial, the purchaser may sign the permanent installation order as shown. This will save the printing of trial installation cards and the mimeographed, simple-looking sheet will *not* make the person signing it think they are signing any ironbound agreement. The card illustrated is used by the Twin State Gas & Electric Company of Brattleboro, Vt.



Price, Inspection and Delivery Card used by the Utah Power & Light Co., Salt Lake City. Illustration shows both sides. Size of this card is 6½" x 3¼".

Price, Inspection and Delivery Card. This is a combination card with a three-fold purpose. It simplifies and unifies one of the important steps in recording a range sale and installation. It contains the price, a record of the inspection and the details of delivery. As soon as the range arrives in stock, the card is attached and the price information filled in. Inspection by the Service Department follows.

When the range is sold and delivered at the purchaser's home, the inspection and delivery records (each side of the lower section of the card) are detached and returned to the Service Department where a record is made on the Range Record Card.

FORM 3-3144 3M 5 17

UTAH POWER & LIGHT CO. **ELECTRIC RANGE RECORD**

OFFICE _____ DIVISION _____

DATE INSTALLED	DATE DISCONNECTED	NAME	ADDRESS	SUCCESSOR

CONDITIONS

HOUSE-HOW HEATED ? _____
KITCHEN-HOW HEATED ? _____
WATER-HOW HEATED ? _____
WHAT AUXILLIARIES — _____
COAL RANGE ? _____
GAS RANGE ? _____
KITCHEN HEATER ? _____

EQUIPMENT

NEW _____
SECOND HAND _____
SERIAL NO. _____

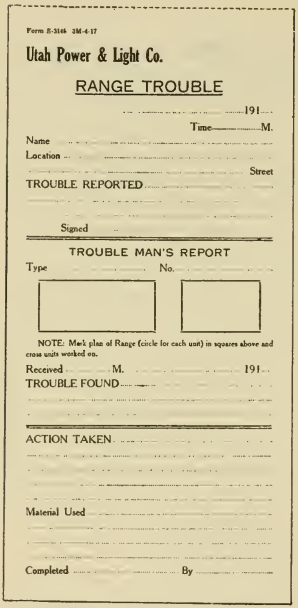
HOT PLATES	CAT. NO.	OVENS	CAT. NO.	COOKERS	CAT. NO.

DATE	ORDER NUMBER	UNIT NUMBER REPLACED	UNIT NUMBER REPAIRED	FUSES M L	FUSES 60	UNIT CAT. NO.	COST	REMARKS	INSPECTED BY

Range Record Card used by the Utah Power & Light Co. Size of this card is 8" x 5".

Range Record Card. The Range Record Card is the complete history of each particular range. This card record is started the day the range goes into stock and every repair, and the details of other kinds of service rendered are recorded on it. In order that it may be kept up to date, the Contract Department should be instructed to send to the Range Service Department details of *all* range activity such as: Installations, disconnections and names of successors. In this way, the Record Card is sure to have all the ranges on the lines correctly recorded.

Range Trouble Order. This order is practically the same as a regular Emergency Trouble Order with a single exception. It is the graphic record of the trouble. Note the two rectangles in



Form E-3165 2M-6-17

Utah Power & Light Co.

RANGE TROUBLE

....., 191...

Time..... M.

Name .....

Location .....

..... Street

TROUBLE REPORTED .....

Signed .....

TROUBLE MAN'S REPORT

Type ..... No. .....

NOTE: Mark plan of Range (circle for each unit) in squares above and cross units worked on.

Received ..... M. ..... 191...

TROUBLE FOUND .....

ACTION TAKEN .....

Material Used .....

Completed ..... By .....

Range Trouble Order used by the Utah Power & Light Co. This sheet is prepared in duplicate. Size 8" x 4".

the illustration. The left one represents the cooking surface of the range, the right one the oven. When making repairs, the service man draws in the units (with circles) and marks a cross in the one repaired. This trouble order follows the same routine as the regular trouble order.

Any central station desiring to use the design and contents of the office and warehouse forms shown on these pages may do so without asking the consent of the Society or the central station. Before fully deciding on the style and contents of new forms, it is a good plan to write for the catalogs of a number of card filing companies from which many excellent ideas may often be gleaned. Such companies also advise and assist prospective customers in such problems.

Contractor-Dealers' Position

Place in Industry. The contractor-dealer has a well-defined place in the Electrical Industry. He is just as important in his position as the central station, jobber or manufacturer. He belongs to the industry. He is entitled to live. He specializes in wiring—and in the retail selling of electrical goods *at a profit!* When a central station is selling appliances they are competing with the contractor-dealer. But he does not compete with them. He

does not sell current. And every transaction he makes shows on the profit side of the central station ledger. So he must be protected in the sale of ranges as he is protected in the sale of irons and other household devices.

Situation Today. Up to the present time the contractor-dealers have not sold electric ranges because the central stations were obliged to assume the responsibility of getting ranges on their lines and giving them adequate service. The great majority of contractor-dealers were unable to invest money in a stock of ranges and the necessary merchandising effort; and also unable to finance time payments. Moreover they did not have the facilities to install ranges on trial. And so practically all of the range merchandising accomplished up to the present time has been done by the central station.

Another factor which has prevented the contractor-dealer from entering the range business and that has often stopped a well intended effort, is the central station selling ranges below manufacturers' list prices. Of course the contractor-dealer could not compete as his profit comes entirely from selling *above* cost. Thus he has been left out of the range business almost entirely except for range wiring which some central stations gave him to maintain his good-will.

Merchandising Tomorrow. Owing to the care which was necessary in introducing, selling and serving the electric range up to the present time, the central station has been justified in handling it almost exclusively but they have not been justified in selling it below manufacturer's list prices. See *Price and Selling Policies*, page 73.

But the day is rapidly approaching when the contractor-dealer will be able to finance a range stock, sell ranges with little effort and for cash and not largely on a trial basis.

After the central station has introduced electric cookery, it will some day no doubt turn over all the range business to the contractor-dealer and devote itself exclusively to the generation and distribution of electricity. After ranges are introduced and a number of housewives of the town can testify as to the practicability of the range, trial installations can be discontinued. Trial purchases of automobiles, victrolas and similar articles are no longer made because everyone knows what they will do. It will be the same with an electric range.

The contractor-dealer cannot put on elaborate campaigns but he can build his business around the activity begun by the central station. He can gradually increase his sales people, add a demonstrator and begin a small amount of advertising within a short time after his central station has introduced electric cookery.

The central station should not establish a cut-price policy that will prevent the contractor-dealer, hardware and department stores from going into the range business. It is unfair. Every man and every business has moral and ethical responsibilities of which they must be continuously cognizant. But aside from this is that one very important business consideration: Encouragement by the central station of the contractor-dealer's range business as a direct feeder to central station revenue.

Mutual Dependence. There is without question a mutual dependence between the central station and the contractor-dealer, and this should make easily possible an agreeable arrangement for the co-ordinated handling of the range business. To a given measure each is dependent upon the other; for where the contractor-dealer represents any considerable factor in the local electrical business the central station cannot enjoy its best return from the range business without the contractor-dealer's support.

As mentioned before, the contractor-dealer cannot always begin by putting on an elaborate campaign; and it follows that his maintenance of anything like a complete parts, and repair department is impossible in the beginning. Not only in such an instance as this but in every one, there should be a hearty, friendly co-operation between the central station and contractor-dealer.

As the contractor-dealer increases his range business and becomes large and strong enough in it to maintain his own efficient service department, he still can and should co-operate with the central station, for the increase in the contractor-dealer's range business will not lessen mutual interests but never approach that point where the two will conflict.

The best policy for the central station to establish today is to sell all ranges at manufacturer's list prices plus a fair profit on the wiring. If the contractor-dealer does not go into range merchandising at least get him to install a display and give him a percentage for the name of a prospect who ultimately buys and a better one for the actual sale of a range.

This policy permits the contractor-dealer, hardware and department stores to go into range merchandising, or to at least make a profit on a range display. All three classes of dealers will no doubt play a prominent part in the future development of the electric range and it is thought by authorities in the industry that eventually the central station will gradually work out of appliance merchandising and turn over this business to the contractor-dealer. One-third of the communities in this country today are served by central stations which are *not* doing a merchandising business so it seems obvious that the contractor-dealer is likely to handle the range business of tomorrow.

CHAPTER VII

SELLING POINTS

Selling the Electric Cooking Idea

The Prospect. Nearly all range sales are made to women. So this article is directed toward them but it will apply largely when the man is a factor in the sale. Women are curious, innately skeptical, susceptible to bargains and attracted by "free" offers. A prospect is interested in how the electric range fits into *her* life—how it is going to help *her*. She does not want primarily to know how it is made—nor how it works. This information comes later.

A woman has usually formed but one idea when she first inquires about the range: That electric heat is costly. Do not give her an opportunity to ask this question. Begin immediately to ask *her* questions. This will tend to make her forget to say, "Isn't it expensive to operate?" Keep on asking her questions. Get the information about her first. Get the "lay" of her mind. Something attracted her to the range. Something appealed to her and this "something" will be the route to her appreciation and signature on the contract.

The salesman must locate her "sales target." He must know where to aim his talk because women buy ranges for different reasons and a point which will readily sell one woman will have no effect whatsoever on another.

Be discreet when arousing curiosity or playing on vanity. A little sometimes works well; too much often kills the sale. Don't

make statements which cannot be proven. Women have good memories and delight in referring to mis-statements. A mis-representation or untruth destroys their confidence in the salesman. And where confidence has been shaken the chances of a sale are *materially lessened!*

The Idea and not the Range. Electric ranges *are sold*—not bought! A purchase is never made until the prospect knows just where, when and how the device is going to fit into *her* life. Women do not know about electric ranges. Therefore electric ranges are never bought literally.

Also the prospect does not buy because the salesman *wants* her to but because *she wants* to buy it. The salesman's job is not to *get* her to buy—but to get her *to want* the range because the decision to purchase is her province, not the salesman's. The salesman does not sell the prospect but helps her sell *herself*. Therefore he must get *her* viewpoint. Look at the range from *her* angle. This puts the salesman on *her* side and establishes a more favorable relationship.

A salesman should sell the *idea* of Electric Cookery—not the range; perfect cooking service—not the price; what the range does—not what it is; what it will do for her—not what it did or does for others. A woman is always more interested in the service than in the price of an article. Service is always with her. Price is incidental.

So the range salesman must "paint" in words a picture for his prospect. Make her see her new kitchen modernly and efficiently equipped with an electric range. Make her imagine herself cooking in this newer, cleaner, more saving and savory way—this is selling the *idea!*

Scientific Methods—

Cooking more delicious, digestible and nourishing food with assured, uniform results and a minimum of time and work.

Joy of electric cookery—
Freedom from excessive heat, fumes, sooty utensils, handling of fuel; wearisome drawn-out methods.

Convenience
Obtaining any desired heat at the touch of the switch—instantly.

Cleanliness—
No smoke, no soot, no discolored walls and woodwork.

Saving in work—
Elimination of fuel handling, pot scouring.

Saving in food—
Much less shrinkage in meats; utilizing cheaper cuts, making them tender and delicious. Making palatable the coarser foods.

Fresh pure air—
No hot gaseous fumes to devitalize; less odors from cooking.

Safety—
No danger of fire, explosion or asphyxiation.

Continuity of service—
Not affected by coal shortage or transportation.

Standardized cost—
No fluctuation in price of current as there is in wood, coal, coke or fuel oil.

No fuel storage space required.

Reputation for being modern.

Easy payment plan.

The following points are *not* to be featured or dwelt upon. They are bound to come up—and they must—but they *are not* the subjects to be brought up by the salesman nor such as he should admit for any prolonged discussion or argument. They are incidental. Do not feature—

The range itself	Nickel trimmings
Price of the range	Free installation
Cooking rate	"Twenty dollars cheaper this week"
Cost of operation	White enamel splashers
Strong construction	The guarantee

Every successful action or undertaking has a direct, definite goal. The battleship gunner knows his target. The architect knows every nook in his future building. The successful range salesman chooses a straight course in his sales talk—the route of which is the prospect's most responsive spot, and the goal is the prospect's desire to buy.

A number of miscellaneous advantages must not be shot at the customer. They will be scattering and as futile as rammed birdshot. Diplomatic questions often uncover her personal interests. Determine a sales argument logical to her—and make it the one big point of the conversation. Generally one certain hit wins the ball game. Generally one certain point followed in the right way makes the sale.

If a woman is doing her own work and dislikes building fires, dumping ashes and scouring sooty pots, the safety of the range will make no impression whatsoever on her. But she buys when shown that all this drudgery is eliminated. If a woman has a little boy whose chief delight is playing with matches and fire, the safety of the range will appeal to her rather than scientific cookery.

Learn to say $150 or $250 without hesitancy or meekness. Continuously think this *is* a low price. Electric ranges sell for more than fuel ranges but the price is fully justified. No fuel range at any price—*as a gift*—can furnish the service rendered by the electric range! If a salesman cannot establish the legitimacy of the price within himself, he will have a difficult job convincing anyone else of its justification.

Help the customer select the right model. Pick the one she needs rather than the one she wants—if it is possible. Learn the size of her kitchen, the number of the family and the character of her cooking. Smaller ranges usually do the work, save

WHY WOMEN BUY

	Yes	No	Percentage in favor of
PRICE MAINTENANCE			
Does a cut in the price of a nationally advertised price lower your opinion of the product? (4.5% undecided)	34.0	61.5	
SALES METHODS			
Favor magazine and newspaper advertisements			57.0
Favor samples			13.4
Object to personal calls			12.7
Favor show windows			6.7
Favor personal calls			4.2
Favor telephone calls			3.0
Favor demonstrations			1.8
Favor show windows			1.2
QUALITY AND PRICE			
Consider quality first			51.1
Consider price first			26.1
Consider both (6.9% did not give definite answers)			15.9
MAIL ORDER HOUSES			
Have purchased from mail order houses	47.8	52.2	
Believe quantity purchases lead to extravagance (6.4% did not give definite answers)	59.7	33.9	
CASH OR CREDIT			
Would pay cash if prices were reduced 2%	76.2	23.9	
Do merchants give more attention to charge customers than to cash customers? (6.3% reported "no difference")	62.5	31.5	
FREE DELIVERIES			
Would pay cash and carry home heavy purchases if prices were reduced 10%	74.2	25.8	
Would order goods according to a definite delivery schedule	96.5	3.5	
Showed a knowledge of the cost of free deliveries	23.8		
SERVICE			
Impressed most by courtesies involving credit			8.1
Impressed most by courtesies involving clerks			54.1
Impressed most by courtesies involving privilege of returning purchases			10.8
Impressed most by courtesies involving the privilege of an unhampered examination of goods			8.1
Impressed most by courtesies involving a prompt refund of the purchase price of returned purchases			13.5
Could the service now usually offered be restricted?	59.5	40.5	

WHY WOMEN BUY

DISTRIBUTIVE COSTS	Yes	No	Percentage In favor of
Showed a passable knowledge of the cost of running a department store	53.5		
Showed a passable knowledge of the price at which the manufacturer sells a cake of soap of a brand advertised nationally	26.9		
Desired to know more about where goods come from and how they are made	92.1		
Expressed a desire to see a reduction in the number of styles of shoes marketed	62.6	37.4	

This analysis of why women buy was compiled from questionnaires sent to the presidents of 94 women's clubs. Reproduced from "Making Your Store Work for You," published by A. W. Shaw Company

space and use less current. A smaller number of surface units can be used a little longer time which will eliminate heating one or two other surface units to their maximum heat. It is better to cook two foods one after the other on one surface unit than to heat two surface units to their maximum heat. Bringing the second one up to full cooking heat takes considerably more current than keeping one going at a desired temperature.

Avoid technicalities. During the sale never voluntarily mention kilowatt hours, how the rate is figured, or any other thing which would not be understood. Don't confuse her thoughts and help her imagine the range is something very difficult to operate. Impress upon her that the electric range is the simplest, safest cooking device. There is nothing complicated nor mysterious about it. It is just as simple as the electric light—just a matter of turning the switch.

Never force a sale. Never use too much effort. It gives the impression that the range *is* difficult to sell. Make each customer

want the range before a contract is signed. To bore her with too much persistence—to make her sign a contract to get rid of the salesman *is not selling the range.* It is selling her *relief* from an undiplomatic salesperson.

Feature a few big advantages. Touch only on the numerous minor ones. Too many claims are confusing. Simplicity rules in every sale. Don't try to make the prospect think the range is without a fault of any kind. She will be suspicious of an effort to hide something she is bound to find out. Analyze it as a judge or friend helping her to decide. This makes praise doubly effective and claims more impressive. Don't criticise other cooking devices. It is unbusinesslike and lowers the salesman in the prospect's estimation and confidence. There are enough selling points without attacking competition or a competitor. Confine the talk to affirmative, positive statements—about the electric range. Avoid negative talk of all kinds.

Price not Important. A woman does not buy an article because it is cheap! She buys it because she wants its service. If she has no precedent to follow in estimating its value, it might be worth five to ten times as much as she is paying for all she

THE KODAK people do not sell a leather box with a lens; they sell *the idea* of easy picture making. The automobile people do not sell an engine, a chassis and four wheels; they sell the idea of quick, luxurious transportation. The real estate man does not sell a quantity of brick, mortar, joists and shingles; he sells the idea of a home. This is salesmanship!

knows about it. When she learns about the service it can render and comes into full appreciation of all the increased comforts and conveniences, the price of a range does not enter into the sale. She is educated to it, wants it.

If price was a factor in sales today people would not be buying thousands of:

Electric cleaners at $50 when brooms can be purchased for $1.
Electric toasters at $8 when excellent fuel toasters only cost 50c.
Kitchen cabinets at $60 when kitchen tables sell for $3 and $4.
Electric irons at $8 when fuel-heated irons sell for 50c.
Automobiles ranging from $500 to $15,000 when a horse and buggy costs $200 to $300.
Electric fans at $15 to $40 when palm leaf fans cost 10c.
Typewriters at $100 when pen and ink can be bought for 10c.

These and thousands of other articles on the market today sell for many hundred times the cost of their predecessors because of the service they render. Therefore in a sale, *the Service*—not the device—is sold. So $150 is a *high price* for a range body, four legs, four surface units and an oven. But $150 is a *low price* for Electric Cookery. Therefore sell *Electric Cookery*—not ranges!

Better Cooked Food

Salesman's Knowledge. A salesman must know where his product is different from competitive articles. It is his chief selling point. As the principal feature of the electric range is its superior cooking, the salesman must know the fundamentals of cookery; why heat is applied to food; methods of cookery; the many differences between fuel and electrical processes. He must know how to cook some of the simple, popular foods. He must

know the characteristics of electric heat. See article on *Electric Heat*, page 51. This knowledge will not only give him confidence in the range but will complete his sales talk by teaching him "cooking language."

Science Supersedes Guessing. Yesterday, cookery depended on good guesswork, favorable conditions and the continuous basting, shifting and stirring of the food because the flame was subject to fluctuation and the oven occasionally developed "hot spots." Ofttimes cakes "fell;" roasted meats were over- or underdone and greatly shrunken; bread was raised unevenly and with questionable results in the texture and color.

But today the electric range gives the housewife scientific exactness—in the utilization of the heat and the cooking of the food. Perfect cookery demands electric heat because of its flameless, odorless generation, uniform intensity, even distribution and instant perfect regulation.

Cooking authorities have recognized the infinite possibilities of the electric cooking chamber. The prediction is offered that the future cooking device—both domestic and commercial—will be an electric oven having different sized compartments because of the:

Heat uniformly distributed on all sides instead of at bottom only
Thorough cooking because of the concentrated heat
Non-circulation of air which minimizes evaporation
Absence of gaseous fumes
Adaptability for steaming processes
Great saving in heat
Assurance of results through control
Removal of all possibility of burning or over- or under-cooking.

Methods of Cookery. The usual processes of cookery are: Roasting, baking, broiling, boiling, steaming, stewing and frying.

There are other methods which are merely variations or combinations of these, a knowledge of which is useful but not entirely necessary to a salesman.

Roasting, baking and broiling are dry-heat processes. Boiling, steaming, stewing and frying are wet-heat processes. And the temperatures necessary in these seven processes increase in this order: Simmering, stewing, steaming, boiling, baking, frying. roasting and broiling.

Roasting and baking are done by dry, radiated heat. Broiling is done by a more intense and glowing radiated heat. Boiling is cooking by submerging the food or substance in water at an initial temperature of 212 degrees F.

Steaming is cooking through a medium of steam arising from boiling water. Stewing is a modified boiling process, less water being used. The object is to extract (not to retain) the juices of meat, vegetables and fruit. By this method are produced the gravies of meats and vegetables, the juices of fruits. A stew is usually started with cold water, the temperature being gradually raised to about 185 degrees F. and maintained at that point.

In all these methods with the exception of steaming and stewing, the foods are subjected to a high temperature in the beginning to "seal" the surface or form a crust thus retaining the flavors, necessary moisture and nourishing values. These methods are described in detail in the following paragraphs on foods.

Breads and Pastries. In electric cookery, the mixing of breads and pastries requires less milk or water as less evaporation takes place in the electric oven than in the fuel oven. This is due to the non-circulation of air and the resultant uninterrupted action

of the heat upon the dough. Breads and pastries develop a finer, softer texture because the loaf is more uniformly raised and thoroughly and uniformly baked. Their crusts are thinner and more evenly browned and of a finer, softer texture.

In the use of the two commonly known agents for raising bread-stuffs, yeast and baking powder, a gas is liberated within the mass of dough which expands and reaches every portion, some of it escaping to the outside air. But a great deal of this gas, enough to accomplish its purpose, is retained within the dough and forms myriads of little bubbles each of which makes a minute cell. As the cells are formed the heat gradually removes the moisture from the dough, stiffens the texture immediately surrounding the little gas bubbles and the finished mass reaches a definite, permanent form in the shape of the finished loaf or other bread-stuff. It can be very reasonably seen that there should be a certain amount of unity in action between the rising and baking process. As the rising takes place before the stiffening of the dough around the minute gas cells, the gas is liable to escape from the still, limpid dough. If this happens the gas cells will be broken and collapsed and the dough will again take on its original form of a dense mass. If, on the other hand, the leavening gas has not had a chance to rise throughout the dough, the loaf will not reach that point of "lightness" but will bake to a sodden heavy mass, the body being hard and solid with few or none of those little cells.

Where the proper relation between rising and cooking is sustained, the little gas cells will be smaller, more numerous, more evenly formed and uniformly distributed.

Generally for one-pound loaves of bread, the correct temperature for placing the dough in the oven is 400 to 500 degrees F.

This temperature is attained by turning on both the upper and lower units. It is then maintained by turning the upper unit off and the lower one to medium or low heat. The more satisfactory method of determining these temperatures is to use a Fahrenheit thermometer. Any reliable recipe book may be used in cooking in the electric oven. Biscuits and rolls may be baked at a higher temperature because they are smaller and the process is quicker.

Vegetables. Vegetables are watery foods. By the old-fashioned method of cookery, they are usually boiled in an indefinite amount of water. This method applied the heat through the water—and a large part of the flavor, color and nutriment were boiled out of the vegetable and into the liquid and then drained off and thrown away. This process is one which had to be watched and gauged with accuracy to give the most satisfactory results. Failure or success was more largely dependent upon "accident," and the result was quite often over- or under-done dishes. With some certain vegetables the result was apt to be tough, stringy or otherwise unpalatable.

But in the oven of the electric range or the electric cooker it is possible to steam vegetables with a very small amount of water. The kettle is enclosed in a comparative air-tight compartment and the steam is generated, conserved and superheated and acts as a much better medium for heat distribution and application. The material food values and full flavor are therefore retained in the vegetables as they cannot be absorbed by the steam. A longer time must be allowed than for boiling and the process is started in either cold or hot water. Another name for this method is "Conservative Cookery."

The following table shows the advantages in steaming

vegetables electrically. It compares the losses which occur in boiling and steaming of the edible portions. Published through the courtesy of the Home Economics Journal.

	Solids	*Ash*
Spinach, boiled	31.59% lost	51.65% lost
" steamed	0.18% "	9.34% "
Difference	31.41%	42.31%
Cabbage, boiled	32.86% "	42.62% "
" steamed	2.54% "	11.47% "
Difference	30.32%	31.15%
Carrots, cut up and boiled	10.05% "	11.48% "
" boiled whole	6.28% "	7.38% "
Difference	3.77%	4.10%

Carrots steamed 6% sugar lost
" boiled whole 17% sugar lost
" boiled cut up 26% sugar lost

Meats. Meat is roasted, broiled, fried, stewed or boiled. In roasting, broiling, frying and generally in boiling, it is immediately subjected to a high temperature, forming a crust which retains much of the food values.

Usually boiling is done for the use of the meat only. But stewing is done for the use of both the meat and the liquid part of the stew. In boiling, the whole piece of meat is submerged in boiling water and the surface coagulated. In stewing, the meat is cut into small pieces to get large surface area and the process started in cold water to dissolve the protein and extract the flavors. The heat is gradually increased until it reaches about 180 degrees F. at which temperature the cooking is continued. By this process the broth will be rich and nourishing—but the meat, while tender, lacks in a great measure its nutriment and flavor.

There are two kinds of protein—each requiring a different heat treatment. The protein in the muscle dissolves in cold water and hardens under high temperature. The protein of the connective

tissue which holds the muscle fibres together, shrivels and becomes tough under dry heat, softens under slow heat and dissolves under continuous boiling.

In the electrical roasting of meats, less shrinkage takes place because there is very little evaporation. To understand this appreciable saving, one must know the effect of the heat on the various chemical constituents of protein, starch and fat.

An analysis of beef shows that lean beef contains 75% water, medium fat beef about 72% water, very fat beef 53% water. As there is a greater loss in weight when cooking very fat meat than lean meat it is obvious that water is not the only loss.

It is best to place the meat in the oven when it has reached a temperature of from 250 to 300 degrees F. Within a short time the temperature should be reduced to about 200 degrees and the meat left for the roasting period which depends on the weight of the piece and the results desired. Authorities say that eighteen to twenty minutes per pound will produce the best cooked piece of meat.

When a roast goes into the hot oven, the surface is coagulated and acts as a protective shell against loss of juices and aroma. Thus the roast loses only 10% to 12% of its weight, virtually all the nutritive value is retained and the flavor and digestibility are much better than if the meat has been subjected to fuel flame and a constant circulation of cool air.

The muscle fibres of meat consist of bundles of microscopic tubes of an albumenoid substance held together by the connective tissues and fat cells. Tubes of the muscle fibres contain water holding in solution many different substances necessary to the nourishment of a healthy body, such as valuable salts of potash and phosphoric acid. The connective tissue is converted into gelatin.

In the presence of water this tissue absorbs five times its weight, dissolves when heated, and sets in viscid jelly when cooled. This property is however quickly destroyed when heated to 284 degrees F.

For cooking the muscle fibres, a temperature of only 170 degrees F. is necessary to coagulate and loosen the fibres. For cooking the connective tissues a temperature of about 200 degrees F. will yield gelatin. The cooking of the connective tissues is greatly aided by the presence of water in the meat and is thereby made far more digestible. The fat has been made more brittle and nourishing by the extraction of part of the water. The retention of a part of the mineral matter is valuable in building up muscle tissue. And the improved flavor comes from the concentration of the salts and extractives.

As 75% of most meat consists of water, the cook is not only wasting fuel but causing a rapid evaporation when the temperature is over 212 degrees F. The surface dries out and allows the inner juices to ooze out carrying with them the valuable juices and mineral salts.

"GOOD HOUSEKEEPING Institute heartily endorses electric cookery. Electricity produces a clean heat; it is convenient to use—in truth a perfect servant responding instantly to regulation; and finally, the cooking results to be obtained from it are excellent in a uniformity of texture and the development of flavor."

—Good Housekeeping Institute.

Advantages of Electric Range

Scientific Cookery. The electric range is the one scientific cooking device. Perfect cookery and identical results are obtained every day in the year through its ideal generation and distribution of heat. The electric process improves every method, and furthers every principle of the modern domestic scientists and dietitians and produces more delicious, digestible, nourishing food than is turned out by any other cooking device. See *Better Cookery*, page 135.

Simplest Operation. No other cooking device is as simple in operation or as easy to handle. Any desired heat can be quickly obtained by a turn of the switch. There is no fuel to order, store nor worry about; no coal nor wood to carry; no matches to scratch; no fire to build nor watch; no flue to operate and no ashes to dump. It does away with the coal bin, chimney and ash pan.

Perfect Control. Each surface and oven unit is controlled by a switch which gives three degrees of heat—Full, Medium and Low. Medium heat is just one-half as hot as Full heat. And Low heat is just one-quarter as hot as Full heat. These different degrees are absolute; they never vary or fluctuate. Therefore the range is absolutely dependable and does not require close watching when the cooking is being done. Supervision has been superseded by *timing*. There is no worry about room temperature, gas pressure, heating quality of coal, condition of the flue, velocity of the wind, humidity and other by-gone cooking factors.

Heat Conservation. The electric oven is designed with a thick insulation which retains the heat long after the current has been switched off. Therefore the cooking is done principally on the

conserved heat which can be maintained by having one of the units turned Low.

Tests have proven that the electric range is 85 percent efficient, the gas range 20 percent efficient and the coal range only 2 percent efficient. In other words 85 percent of the electric heat, 20 percent of the gas heat and 2 percent of the coal heat is generally utilized.

Appreciated Coolness. The electric range oven radiates less heat than any other stove owing to the insulation. The electric range is strictly a cooking device *and not a kitchen heating appliance like the coal and gas range.* It is especially appreciated in the Summer when preparing a meal over a fuel range is almost unbearable. After cooking electrically the housewife is fresher, the kitchen more cool and comfortable and the ice in the refrigerator unaffected.

Utmost Cleanliness. As electric heat is developed from wires—open or enclosed—there is no flame, no combustion, therefore no smoke, fumes, sooty pots, discolored walls nor vitiated air. All the hot, dirty work of building, lighting and watching the fire and the cleaning up of waste material is done many miles away in the central station power house.

Absolute Safety. Operating without matches or flame, the electric range eliminates all possibilities of fire, explosion and asphyxiation. Moreover there is no danger of flying sparks, no danger of electric shocks. Children may play with the range and liquids may boil over without accident.

Economic Factors. The electric range is a direct factor in a great saving of food, time, worry, kitchen space. It reduces the drudgery and supervision of the kitchen easily by half.

Using Appliances on Range Socket. A number of central stations permit their cooking customers to use appliances on the

cooking rate—permitting them to be attached to appliance receptacle which is installed on standard makes of electric ranges today.

This makes an excellent talking point in selling a range and the loss in revenue is comparatively small as there are only two or three appliances which can be used in the kitchen: The electric iron and electric washer. The chafing dish, toaster and grill are generally used on a dining room table and of course the cord will not reach to the kitchen. The electric cleaner is not used in the kitchen, so this current will never be taken from a range socket. The central station will therefore find that very little current is used from an appliance receptacle on a range and that in permitting a woman to use an appliance or two on current through a range meter will more than pay for itself by securing her good-will.

Overcoming Obstacles

Price. Selling electric cookery is not done automatically—nor is it a lazy man's job. There are many points of resistance which must be overcome. The most serious is perhaps the price which is overcome by thoroughly selling the idea of electric cooking service and introducing a time payment plan. Nearly every "high-priced" article today is sold on the installment plan irrespective of the financial condition of the purchaser. See *Time Payments*, page 75.

Operating Cost. The operating cost is not a serious consideration when the user has been educated to the economical use of the range and a full appreciation of the possibilities of heat conservation.

But it is unjust to make a dollar-and-cents comparison between an electric and a fuel cooking bill. There are many items covered and provided for in an electric bill which are not in a fuel

bill. Place a rightly-merited definite value on the many advantages derived from cooking electrically and it will many times more than compensate for the cost of the current.

"Slower" Operation. In electrical cookery many of the processes are "slower" than the other (older methods). In approaching this phase of selling, the salesman should get the right angle—that this is an advantage—not a disadvantage.

His work is not that of introducing a new kind of "cook stove" to which the housewife must become accustomed and change her "good" methods of food preparation. The correct interpretation (presentation) is just the opposite. And it has been demonstrated in domestic science—by good cooks the world over—that of the very many cooking processes, the majority produce better results when performed in the "slow way;" that the rapid preparation of food is (generally speaking) detrimental to the best results.

The progress of the culinary art has only been possible through the advancement of superior methods for controlling and distributing heat, the majority of these being directed along the research lines of even distribution and temperature control. It was appreciated that the heat should thoroughly penetrate the food stuffs and produce uniform results throughout. The truth of this theory has been evident from the very beginning and it is only because of the limitations of the known methods of fuel-heat control that progress up to the point of electrical cookery was never before attained.

Instead of the housewife looking at the situation as necessitating a change in her methods of preparation of food, she should appreciate the wonderful advantage in being able to prepare her foods in the *right* way and adapting the rest of her household duties to this more natural, easier order of things.

And this advantage applies not alone to the kitchen—in the cooking; it shows its remarkable, beneficial influence in the whole process of housekeeping—home making. The electric range is an event—an innovation—of the newer, better order of things.

Let the salesman begin at the beginning—the correct preparation of foods. Let him lead her slowly, assuredly through the real fundamentals of correct cookery and she will arrive at—not the fuel range, or any of the other old-time methods but—*the electric range!*

Heating Kitchen. Ofttimes where homes do not have adequate heating facilities and the warming of a kitchen and dining room is dependent upon the kitchen range, a woman will hesitate about the purchase of an electric range because it does not heat the kitchen.

In the first place it is not the purpose of the range to heat the kitchen. Its purpose is to cook food without heating the kitchen. This idea should be thoroughly driven home. In the second place, this may often be easily overcome by selling the woman a garbage incinerator which can be installed beside the range. This device will supply sufficient warmth through the burning of garbage, paper and other waste material to adequately heat the kitchen and dining room. Sometimes of course a little coal is necessary but not sufficient to make any appreciable increase in the monthly cost of cooking food and heating the kitchen.

Some salesmen sell auxiliary electric heaters, others oil heaters. But in every case they do not permit the problem to hinder the sale. The rapid increase in the sale of heating systems throughout the United States is helping to solve this problem. It will not be many years before virtually every home, urban and suburban, will have a central heating system.

A distinct separation of the two ideas should be made: (1) The correct preparation of foods—electrical cookery; (2) heating the kitchen. During the few months of the year when the heating of the kitchen is a matter to be considered, an auxiliary such as an additional radiator, an extra heating stove or electric heater, oil stove, gas radiator is a far better solution than to continue old-time cooking methods at such a loss and inconvenience simply to heat the kitchen. When a comparison is drawn strongly, face to face with the facts, the idea of abandoning the wonderful advantages of electric cookery simply to heat the kitchen during the few months of November, December, January and February looks ridiculous and becomes entirely subservient to the many more important advantages gained through the use of the electric range.

Water Heating. This sometimes is a resistance point when a prospect has been heating water in connection with the old coal or gas stove and a central station is not making a low rate for this class of service. In such a case the problem is solved by attaching the coils of the storage tank to the furnace (which of course is only possible in winter), or installing a small coal heater or a waste incinerator. Either of which will supply hot water of adequate quantity.

Central stations however can establish a profitable, yet reasonable water heating rate and install electric heaters without appreciably increasing the individual connected load or demand. See *Electric Water Heaters*, page 185.

Teaching Range Operation. Teaching Japanese, Chinese, Mexicans and negro servants to operate the electric range is a simple matter. The ease of operation, saving of labor, shortening of methods, sureness of results, increased cleanliness of utensils and all other ("selfish") advantages of electrical cookery are

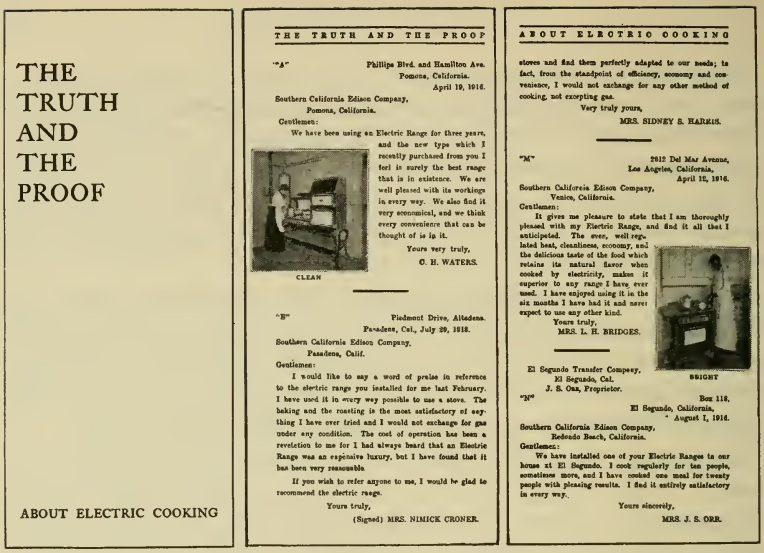
grasped in a surprisingly quick way. On the Pacific Coast a large number of Mongolian servants quickly learned the efficient operation of the electric range. In the southwest Mexican servants have no trouble whatsoever in becoming good electric range cooks. In the Southeast and up to the Mason-Dixon Line a small army of colored servants delight in the operation of this new cooking device.

Where the operator is illiterate and cannot even read the "High, Medium and Low" degrees of the switches, the manufacturer or central station colors these indications and the servant quickly understands that red means High or green means Medium or black means Low—or some similar arrangement.

If possible the better plan in promoting electric cookery in towns where foreign servants predominate is to get a native demonstrator. He or she will have more influence and create a better understanding than an American demonstrator. For example, the Charlottesville & Albermarle Railway Co., of Charlottesville, Virginia, employes a colored teacher in a local school for negroes.

She is in charge of the educational work with her people; teaches electric cooking in her classes and does demonstration work after school. This company has also found that it is profitable to give a diploma to the colored servants after they have reached a certain degree of proficiency in electric cooking. This has made a tremendous hit and has created great rivalry among the colored cooks.

When selling a range to a home with a foreign cook, a good plan is to install a "tell-tale" light both in the kitchen and living room, where the master or mistress may occasionally watch it to see if the servant is switching off the current when the range is not in use.


THE TRUTH AND THE PROOF

ABOUT ELECTRIC COOKING

THE TRUTH AND THE PROOF

"A" Phillips Blvd. and Hamilton Ave.
Pomona, California.
April 19, 1916.

Southern California Edison Company,
Pomona, California.

Gentlemen:

We have been using an Electric Range for three years, and the new type which I recently purchased from you I feel is surely the best range that is in existence. We are well pleased with its workings in every way. We also find it very economical, and we think every convenience that can be thought of is in it.

Yours very truly,
C. H. WATERS.

CLEAN

"B" Piedmont Drive, Altadena.
Pasadena, Cal., July 29, 1916.

Southern California Edison Company,
Pasadena, Calif.

Gentlemen:

I would like to say a word of praise in reference to the electric range you installed for me last February. I have used it in every way possible to use a stove. The baking and the roasting is the most satisfactory of anything I have ever tried and I would not exchange for gas under any condition. The cost of operation has been a revelation to me for I had always heard that an Electric Range was an expensive luxury, but I have found that it has been very reasonable.

If you wish to refer anyone to me, I would be glad to recommend the electric range.

Yours truly,
(Signed) MRS. NIMICK CRONER.

ABOUT ELECTRIC COOKING

stoves and find them perfectly adapted to our needs; in fact, from the standpoint of efficiency, economy and convenience, I would not exchange for any other method of cooking, not excepting gas.

Very truly yours,
MRS. SIDNEY S. HARRIS.

"M" 2612 Del Mar Avenue,
Los Angeles, California,
April 12, 1916.

Southern California Edison Company,
Venice, California.

Gentlemen:

It gives me pleasure to state that I am thoroughly pleased with my Electric Range, and find it all that I anticipated. The even, well regulated heat, cleanliness, economy, and the delicious taste of the food which retains its natural flavor when cooked by electricity, makes it superior to any range I have ever used. I have enjoyed using it in the six months I have had it and never expect to use any other kind.

Yours truly,
MRS. L. H. BRIDGES.

BRIGHT

El Segundo Transfer Company,
El Segundo, Cal.
J. S. Oas, Proprietor.

"N" Box 118,
El Segundo, California,
August 1, 1916.

Southern California Edison Company,
Redondo Beach, California.

Gentlemen:

We have installed one of your Electric Ranges in our house at El Segundo. I cook regularly for ten people, sometimes more, and I have cooked one meal for twenty people with pleasing results. I find it entirely satisfactory in every way.

Yours sincerely,
MRS. J. S. ORR.

Cover and two pages from a range booklet published by the Southern California Edison Co. Page size 9[11] x 4[11]. This book contains 26 letters of commendation about electric ranges from range owners throughout their territory; and it was illustrated with photographs of the installations.

CHAPTER VIII

ADVERTISING

Purpose and Kinds

Purpose. Advertising is the first step and the most inexpensive factor in the sale of an article. Advertising is as necessary to sales as rain to crops. It is just as broadcast in its effect, just as important in its value.

Sales are made only after a customer has a complete knowledge of the article and the service that it renders. Therefore advertis-

ing is a form of education. Advertisements in newspapers and magazines should contain electric cooking news items while the permanent publicity like billboards and street car cards should carry one short message, one concisely stated advantage, which will eventually make an impression and create a more-than-passing interest.

Before a sale is made a certain evolution of thought must take place in the prospect's mind. If no advertising whatever was done a salesman would have to make call after call on the prospect. But advertising will do this at one-hundredth the cost of a personal call. That is its purpose.

Methods. There are numerous media which may be employed to advertise electric cookery, for example:

Billboards
Bills, monthly
Booklets
Carnivals
Canvassers
Charity Bazaars
Church Socials
Cooking Schools
County Fairs
Delivery Wagons, sides of
Demonstrations
Department Stores
Domestic Science Classes
"Electrical Home" Exhibits
Electrical Shows
Envelopes, backs of
Envelope Inserts
Folders
Form Letters
Hardware Stores
Home Furnishing Shows
Lantern Slides
Letterheads
Magazines
Menus
Motion Pictures
Newspaper Ads
Novelties
Parades
Poster Stamps
Prize Essay Contests
Programs
Reading Notices
Recipe Books
Red Cross Rooms
Restaurant Windows
Scenario Contests
Statements
Salesroom Exhibits
Street Car Cards
Street Car Transfers
Signs, electric
Telephoning Prospects
Window Displays

Campaign Advertising. A central station must feel its way before it begins to spend very much money. The initial campaign should of course be a smash but not such a costly display of advertising that will arouse temporary curiosity and later be followed by a harmful indifference through lack of money to continue the sales effort. The beginning or start requires a little more steam just as the starting of a locomotive. *But a certain amount of advertising "steam" is necessary right through the year to keep the ranges moving.*

The first thing to do is to write the manufacturers and get their assistance in preparing a range campaign. Get samples of their advertising and dealer helps. A knowledge of all available literature proves valuable because most all of it will fit into the local activities. If the range manufacturers are putting on a national campaign, the central station should by all means tie in with it by displaying reproductions of the national magazines advertisements and by putting in special window displays and holding demonstrations. It is suggested that a coupon which may be returned for additional information be included in the newspaper and magazine advertisements especially during the first six months of the range activities because every effort must be made to secure the names of prospects: See *Prospects and Follow-Up Work*, page 105.

Between campaigns, regular educational advertising should be carried on continuously but when a periodical campaign is staged every method of advertising should be employed. As women delight in buying exclusive articles and in being shown favors by special invitations, it is a good plan during a demonstration to hold special cooking "lectures" for the more prominent women of the town. They should be invited by personally written letters and impressed with the fact that they are one of a chosen few.

JACKSON ADV. SYSTEM
COOK BY WIRE CLEAN SAFE ECONOMICAL.
Ready in a Minute
OVER 85 IN USE IN BUSHNELL
JUST TURN THE SWITCH
30 DAYS FREE TRIAL
CENTRAL ILLINOIS PUBLIC SERVICE COMPANY

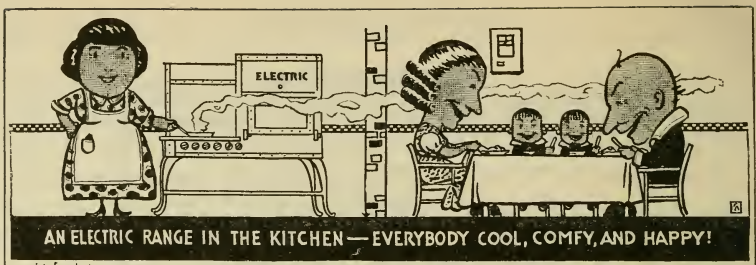
Changeable panel billboard of the Central Illinois Public Service Co. installed in the business section of Bushnell, Ill. The panel is changed every week and the number of range sales are always in public view. This idea is another method of maintaining interest in electric cookery.

Continuous Advertising. Short lively campaigns sell a few ranges. But it takes continuous advertising to impress upon a townful of naturally conservative people that electric cookery is practicable and economical and has come to stay. Therefore *sustained* effort is the greatest factor in successful merchandising.

The purpose of continuous effort is to make people think of electric cookery *every day*—until they have heard and read about it so much that it is just like an old friend. It is this day-in-and-day-out advertising that finally convinces and converts purchasers.

Continuous advertising is done through permanent exhibits in the central station salesroom, in hardware and department stores, on billboards, through the many different kinds of signs and street car cards. These forms of advertising work continuously eighteen hours a day, 365 days of the year.

A novel feature of a billboard erected by the Central Illinois Public Service Company in Bushnell, Illinois, was a movable



AN ELECTRIC RANGE IN THE KITCHEN—EVERYBODY COOL, COMFY, AND HAPPY!

Yes, it IS hot this morning. And it's funny, isn't it, how everything about the kitchen goes wrong on a hot day? The coal scuttle seems to be always empty -- the fire gets low when the bread and cake are in the oven -- and even after the cooking is finished, there are all those black pots and pans to scour! It's mighty discouraging.

And sometimes it doesn't seem quite fair. Hubby is probably down at the office sitting under an electric fan, as cool as that proverbial cucumber, and yet they say HE is the one who WORKS, while all you do is "keep house".

We "wouldn't knock if we couldn't boost." If we didn't have a sure solution for the summer-cooking problem, we wouldn't talk about it. Hundreds of women right here in Salt Lake have let us solve that problem for them. They are using Electric Ranges. Now everything goes right in their kitchens. There are no spoiled bakings -- no more black pots and pans -- no more hot days.

The little booklet, "Brighter and Happier Hours in the Kitchen", which we enclose, tells the story. After you have read it, call at our store on the ground floor of the Kearns Building and SEE FOR YOURSELF how easy it is to operate an Electric Range. It is economical too. It keeps down the cost of fuel and food-stuffs almost as much as it keeps down the temperature of the kitchen.

Every day's delay means more long hot hours in the kitchen. Why wait! There's an Electric Range for every kitchen -- every purse and you pay only a small sum down and the rest monthly.

Very truly yours,
UTAH POWER & LIGHT COMPANY

Representative

One of a series of sales letters used by the Utah Power & Light Co. in their range campaign. This particular letter is printed in blue, orange and black and is very attractive.

panel upon which was painted each week the number of ranges which the central station had installed, up to that date.

Very few if any range manufacturers furnish central stations and dealers with lithographed bill posters owing to their extremely high cost. But the central station or dealer can have some local billboard company paint several boards in advantageous spots around the town at a small maintenance cost per month. All available signs should be used: Electric signs on the roof, muslin signs on delivery wagons and other poster spaces.

Direct-by-mail Literature. Direct-by-mail literature includes post cards, booklets, folders, envelope inserts and sales letters. A special list of live prospects should be compiled to which these different pieces of advertising are mailed periodically. It is such persistent effort that finally acquaints the community with electric cookery and eventually makes sales of ranges. This advertising should be mailed so that it will arrive at its destination at a favorable time. For example: A letter arriving at a home Friday morning has a much better chance to secure complete attention of the housewife than if it is delivered Monday morning when she is busy with her washing or making out the week's schedule.

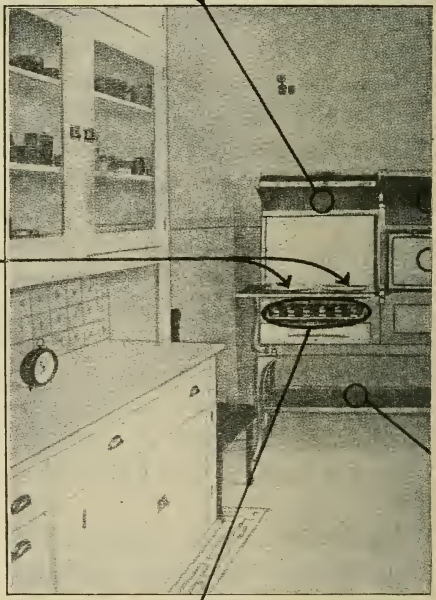
Sales Letters. Sales letters should be mailed periodically to a complete list of prospects and a personally typewritten letter to a select list of women at least once every two or three weeks. Sales letters should be prepared if possible by a manufacturer's advertising department, an advertising agency or the merchandising staff of The Society for Electrical Development—if the central station does not have an advertising man experienced in this particular work.

Sales letters must be short, personal, written from the customer's angle and signed with ink. They should contain a real

Stop and think for a moment, Madam, of the intense heat you generate in your kitchen when you burn an ordinary fuel range. Now remember, that much of this heat escapes—unused—up the chimney, and much radiates into the room! How different with an Electric range. The electric company first generates the electricity and then delivers the electric service to your range, which in turn converts the electricity into heat and applies this heat—without waste—to the cooking of your food. You find every convenience you are accustomed to on the Electric range; for example, the roomy warming shelves within easy reach, just above the cooking surface of the range.

THE HOT PLATES AND VEGETABLE COOKERS OF THE ELECTRIC RANGE—Here on the flat and unobstructed cooking surface of the electric range are located the hot plates and vegetable cookers; no smoke—no fumes—no flame! Absolute safety at all times! Ordinary flat bottomed utensils, to which you are accustomed—are used; the switches control the amount of heat you wish for each hot plate or vegetable cooker The hot plates are used mostly for frying, quick boiling and other short operations, such as making sauces, melting butter or warming up various foods. There is a switch for each hot plate that provides varying degrees of heat.

The vegetable cookers fit down into receptacles provided for them and are especially designed for preparing stews, vegetables, cereals, stewed puddings, pot roasts, etc., which require steaming or boiling. These cookers can also be used as warmers, as they keep hot for some time after the heat has been turned off. Also in some operations the heat can be turned off before the article is cooked and the remainder of the cooking done by the stored heat—on the principle of "fireless cookers."

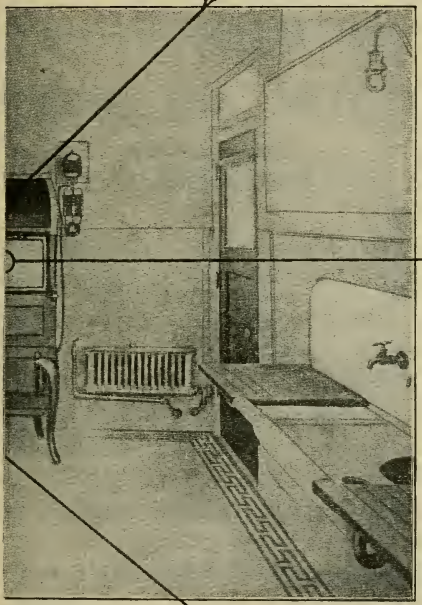


The Kitchen

SWITCH PANEL AND SWITCHES THAT CONTROL THE HEAT—Your very first glance at the switch panel of an Electric range will instantly disclose to you how simple, how quickly understood and how easily operated these Electric cook stoves are. There is an individual switch for each heating element; you can tell instantly whether the switch is "off" or "on." A name plate beneath each switch indicates the heating element each switch operates. Remember, too, that any desired temperature can be secured on the top units or in the oven of an Electric range, by the manipulation of the switches controlling the heating elements. And best of all, perhaps, is the absolute reliability of securing the same degree of heat each time; you quickly learn what temperatures are best for cooking the various dishes you prepare and thereafter all guesswork is eliminated.

Inside fold of a double-page sales letter of the Utah Power & Light Co.

WARMING CLOSET OF THE ELECTRIC RANGE—Commodious and convenient for the housewife's use; designed for the purpose of keeping dishes and food warm until ready to serve. The saving of food an Electric range effects, is one of its greatest advantages. Meat and other food cooked in an Electric range retains a very high percentage of the natural juices, which in turn result in a heavy saving of weight. Many women who use Electric ranges declare that Electric cooking adds twenty-five per cent in weight to every roast that goes to the table.



THE ELECTRIC RANGE OVEN—You ladies who have had to resort to guesswork and trial at each baking because of "slow" fires or hot fires, faulty draughts and the constant need of replenishing fuel, stop and think for a moment what the oven of an Electric range means. When the switches of an Electric range are set to give a certain heat you know positively that the same amount of heat will be given off each time.

The electric range has made cooking an exact science, with all uncertainty eliminated. Just as the proper portion of ingredients for each dish is known to you, so is known the correct amount of heat to apply to the cooking of each separate dish. And on all makes of Electric ranges this heat is instantly regulated to whatever degree of temperature is required.

The ovens of Electric ranges are correctly and substantially constructed and provided with heating elements that enable you to secure the exact temperature desired for any and all dishes.

of Today!

THE PAN SHELF—Broad and deep and providing plenty of room for pots and pans and kettles; a strong, substantial shelf convenient to use and easily kept clean. And you will find, Madam, that all Electric ranges contain many distinctive features of design, operation and workmanship. Electric cook stoves embody the results of extended research and practical experience; thousands of housewives in every section of the United States are using Electric ranges more successfully, more economically and with far greater personal comfort and convenience than any other form of cook stove or fuel.

Every source of discomfort and inconvenience has been eliminated with Electric range cooking. Here is flameless cooking—safe cooking—a cool kitchen—no soot—no ashes—no dirt. The food tastes better and is more nourishing.

which graphically describes the advantages of the electric range.

message and some definite offer or suggestion that a call be made at the salesroom or a request returned for additional information. This will enable the close checking of results from each letter and prove a reliable guide for preparation of others. For the copy viewpoint see *Preparation of Copy*, page 167.

Newspapers, Slides, Movies. Newspaper advertising is necessary in a range campaign to comb the town for people who are slightly interested in electric cookery and who can be developed into live prospects. The newspaper can be made a most wasteful advertising medium if the copy does not have a definite purpose, is not well written and placed in the most advantageous issues and positions of the best papers.

The first announcement should be a full page; then the size can be brought down to quarter pages. Anything less than a quarter page however is generally over-looked as the majority of people only go through a newspaper once then throw it away. Its life is only a few hours and, because of this limitation, newspaper ads should be prepared to produce a striking, telling effect. Moreover a message cannot be completely told nor adequately displayed in an advertisement smaller than a quarter page.

Profitable newspaper advertising is the result of continuous effort. It has a cumulative effect like a snowball rolling down hill. It produces more and more as it is continued. Therefore do not allow your faith or enthusiasm to weaken if returns do not reach expectations during the first few weeks.

During this time advertisements should be run at least once a week—twice a week if the appropriation will permit. For pointers on the writing of the advertisement, see *Preparation of Copy*, page 167.

The lantern slide is an excellent advertising medium because it gives one complete thought to a large number of people each

You, Too, Will Cook On An Electric Range

When You're Convinced of These Surprising Facts

The Meter Says:
"Turn Off and That's Good Also."
The Clock Says:
"Electric Cooking Saves You Many Hours Each Month."
The Mirror Says:
"Electric Cooking Is a Joy to Your Friends and Relatives."

We propose to prove—right in your own kitchen—

1—How the electric range abolishes guesswork in cooking and baking, and makes entirely certain your best results under all conditions.

2—How you can start your meal, regulate the heat and leave the food to cook while you attend to household duties elsewhere.

3—How electric cooking prevents about 10 to 20 per cent of the shrinkage (cooking down) that now occurs in your food, and thus saves just that much on your meat and grocery bill.

4—How electric cooking retains all the delicious juices and flavors of the food, does not dry it up or burn it.

5—How electric cooking keeps the air in your kitchen sweet and pure. Not even a plant will live in a kitchen where the ordinary cook stove is used. That's because an open flame consumes the oxygen in the air

6—How electric cooking keeps your kitchen cooler and far more comfortable; does not blacken your pots and pans, does not smoke or smell up the house, and keeps your kitchen walls and ceiling spotless.

If you could have these and other attractions *without added cost of fuel*, would you be interested? All right, here is our plan that has convinced hundreds and will convince you too.

Our Guarantee Offer

We will install an Electric Range in your home on a 45 day guarantee. You pay one-tenth of the purchase price at the time of purchase.

If at the end of the 45 days your want to keep the range you pay the balance of the purchase price in 11 equal monthly installments

But if the range does not do what we say we will call for it, refund all the money you have paid (excepting for electric current used), and thank you for having tried the range.

We take the risk—not you.

Will You Keep It?

Hundreds Answer "Yes!"

Hundreds of St. Louis housewives and cooks prepare each day's meals on electric ranges

One enthusiastic woman writes us "It would break my heart to part with it!"

Another says: "With the fireless-cooker even the cooking continues after the current is turned off."

Saves Five Ways

Electric cooking saves you time, money, food, work and health.

You twist a switch and the heat comes on—just as you want it—high, medium or low.

There is no flame to blow out if you turn it low or leave it; no danger for children.

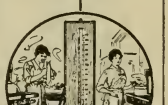
Will You Take Advantage of Our Offer?

Electric cooking has proven to be the supermethod of preparing food in over 3000 communities.

At 3 cents per kilowatt hour for current, St. Louis people have an economic advantage that millions in other cities would barf with delight.

Resolve right now to let us prove in your own kitchen the wonderful excellences of Electric Cooking. Resolve to take advantage of our 45 day guarantee.

Call, write, or telephone for full information. No obligation whatever.



See Electric Ranges in Operation at the Household Show

The St. Louis Household show will be held at the Coliseum for two weeks, beginning tomorrow, March 19th.

There will be on display and in operation these Electric Ranges of all styles and sizes. Competent cooks will prepare your favorite dish if you request it. Or you will be allowed to cook the dish yourself if you like.

Come and see Electric Cooking. Discover new table delights and kitchen short-cuts. Then you'll agree, we believe, that this will be the ruling method soon in up-to-date households.

TICKETS FREE. We have purchased a limited number of tickets to the Household Show for customers You can get them free by calling at any of our offices before too late.

Electricity Is Cheap in St. Louis

The Electric Company

Union Electric: Main Office, 12th and Locust

Branches: 4912 Delmar; 3018 N. Grand; 3012 S. Grand

SIX OFFICES IN THE COUNTY

Full page newspaper advertisement of the Union Electric Light & Power Co., St. Louis. This advertisement is considered exceptionally good as it graphically portrays the many advantages of electric cookery. Note that it contains the definite-action feature—in offering free tickets to the Household Show which was being held at that time and at which they had an electric range exhibit and demonstration.

UTAH POWER & LIGHT CO.

"EFFICIENT PUBLIC SERVICE"

August 12, 1916

"The most interesting thing in the house"--is the way one lady expressed herself recently in speaking of her new electric range.

And isn't it true that each day brings a greater realization of the wonderful possibilities of electric cooking? We are anxious that every woman who owns a cook stove should know exactly how to operate it to the best advantage and secure uniform results.

Therefore, during the present month--August--we are conducting a series of exhibitions and demonstrations of electric range cooking in the model electric kitchen of our retail store, ground floor Kearns Building, every Tuesday and Friday afternoon, for the benefit of you who are already using electric cook stoves. These Tuesday and Friday afternoon demonstrations are in charge of experts in electric cooking, and the purpose of this letter is to extend you a personal invitation to attend the exhibitions, bringing with you as many friends as you wish.

The demonstrations are free and you will find it extremely interesting to ask two or three of your friends, who haven't electric ranges as yet, to come with you in order that they may see for themselves how easy and safe and economical electric cooking really is. The ladies in charge of these demonstrations of electric ranges in actual operation will be glad to answer any questions you may ask and every feature of electric range cooking will be explained in detail.

Very truly yours,

UTAH POWER & LIGHT COMPANY

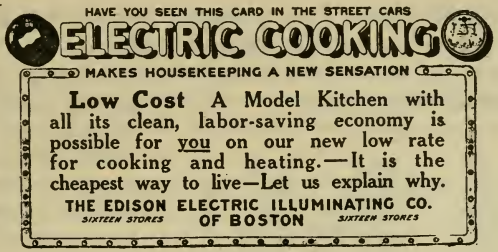
Supt. of Electric Shop

You'll Appreciate the Automatic Feature of this Electric Range

A Good Size for the Average Family

One of the Handsome Cabinet Types of Electric Ranges

Another sales letter of the Utah Power & Light Co. printed in red, green and black. This letter with the one on page 154 proved unusually effective because of their colors and interesting text.

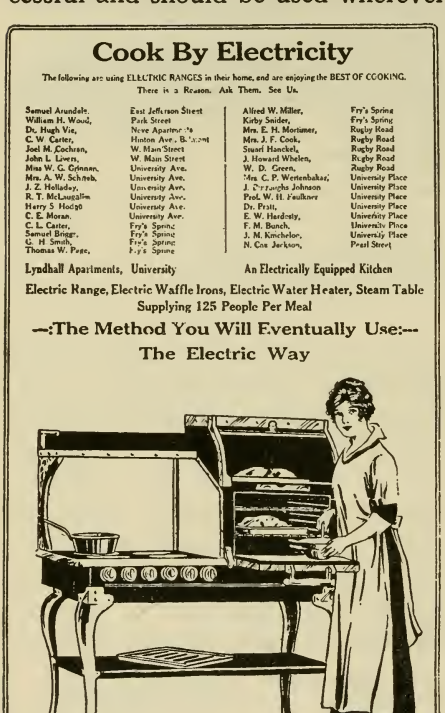

HAVE YOU SEEN THIS CARD IN THE STREET CARS
ELECTRIC COOKING
MAKES HOUSEKEEPING A NEW SENSATION
Low Cost A Model Kitchen with all its clean, labor-saving economy is possible for you on our new low rate for cooking and heating.—It is the cheapest way to live—Let us explain why.
THE EDISON ELECTRIC ILLUMINATING CO. OF BOSTON
SIXTEEN STORES
SIXTEEN STORES

One of a series of street car cards of the Edison Electric Illuminating Co., Boston. One advantage of electric cookery was concisely described in each card of the series.

evening while they are in a relaxed and absorbing mood. It is read because it is easy to read and the only thing which can be seen in the dark theatre. The motion picture is considered to be an advertising method between 95 and 100 percent efficient because it gets the undivided attention of its *entire circulation*; it interests every one because it is a movie—a story—because it is life itself—the most interesting thing in the world; because it presents a complete selling argument more thoroughly and effectively than a human salesman possibly could and to hundreds of persons in a few minutes. Lantern slides and in some instances, motion pictures are furnished by electric range manufacturers.

Educational Work. Educational advertising is maintained by: (a) Securing domestic science and restaurant installations by holding dinners for architects and builders, owners and managers of institutions doing commercial cookery. (b) Establishing such organizations as a Cookery Service Bureau or a Cooking School. Such Bureaus and similar institutions of educational advertising are described under *Sales Development*, page 107.

Feature Advertising. The following plans have proved successful and should be used wherever possible:



Cook By Electricity

The following are using ELECTRIC RANGES in their home, and are enjoying the BEST OF COOKING. There is a Reason. Ask Them. See Us.

Samuel Arundale,	East Jefferson Street	Alfred W. Miller,	Fry's Spring
William H. Wood,	Park Street	Kirby Snider,	Fry's Spring
Dr. Hugh Vie,	Neve Apartments	Mrs. E. H. Mortimer,	Rugby Road
C. W. Carter,	Hinton Ave., Belmont	Mrs. J. F. Cook,	Rugby Road
Joel M. Cochran,	W. Main Street	Stuart Hanckel,	Rugby Road
John L. Lewis,	W. Main Street	J. Howard Whelen,	Rugby Road
Miss W. G. Grinnan,	University Ave.	W. D. Green,	Rugby Road
Mrs. A. W. Schmeh,	University Ave.	Mrs. C. P. Wertenbaker,	University Place
J. Z. Holladay,	University Ave.	J. Douglas Johnson	University Place
R. T. McLaughlin	University Ave.	Prof. W. H. Faulkner	University Place
Harry S. Hodge	University Ave.	Dr. Pratt,	University Place
C. E. Moran.	University Ave.	E. W. Hardesty,	University Place
C. L. Carter,	Fry's Spring	F. M. Bunch.	University Place
Samuel Briggs.	Fry's Spring	J. M. Kinchelor,	University Place
G. H. Smith,	Fry's Spring	N. Coe Jackson,	Pearl Street
Thomas W. Page,	Fry's Spring		

Lyndhall Apartments, University — An Electrically Equipped Kitchen

Electric Range, Electric Waffle Irons, Electric Water Heater, Steam Table Supplying 125 People Per Meal

—:The Method You Will Eventually Use:—

The Electric Way

C. & A. RAILWAY COMPANY

Newspaper advertisement of the Charlottesville & Albermarle Railway Co., Va. in which they list the names of range owners. This idea of referring the prospects to present users is considered good advertising, particularly when a new device is placed on the market. It is unusually effective in electric range advertising.

1. Get ranges in special exhibits such as bazaars, carnivals, shows and similar places.
2. Publish testimonial letters in booklets. This sort of advertising convinces a class who would believe a third party more quickly than they would a central station salesman. Never publish a customer's testimonial however without consent.
3. Watch the national women's magazines for cooking articles and purchase and mail reprints to a special list.
4. Put on a parade when the first ranges arrive in town. Get a brass band; decorate a float or two, particularly one of a scene of a woman being freed from the slavery of a hot, dirty, unreliable fuel range. Get the story in the local newspapers and make as much fuss over the event as if the President was coming to make the town the capital of the United States.
5. Get a range in every restaurant window possible and induce the chef to do his cooking there.
6. Put on an electric cooking scenario contest with a prize

offer of about $25. This will get every woman in the town *thinking about the many advantages* of the electric range. Have the best two or three stories produced by some film company and present them in the picture theatres of the town or territory. These films should be from 400 to 600 feet long and be run once a week.

7. Another good idea for mild or summer weather is to install a range in a public park. The Union Electric Light & Power Company installed one in Forest Park, St. Louis, during the summer. A coin-operating machine was attached to it and for five cents the switches could be turned on and the surface units or the oven could be used for a certain length of time. It was in constant use by picnic and basket parties for heating coffee and miscellaneous cookery.
8. Distribute novelties which will attract women to demonstrations. These can be kitchen utensils such as biscuit cutters, minute glasses, measures, food choppers, can openers, bread knives, wooden spoons and similar small, useful articles. Such novelties can be secured at surprisingly low prices.

Publicity. Publicity is secured by getting stories about electric ranges and electric cookery in the local newspapers and publications. Get on the good side of the newspaper men of the town and sell them a range. Get every restaurant manager who is using an electric range to mention his "Electric Cookery" on his menu. Run lines of advertising about the electric range on your monthly bills, statements, letterheads, envelopes, wrapping paper, bags—everything sent to customers.

Put on a prize essay contest for children which will be described in all the newspapers. The first prize can be about $25; the second best $15 and the third $5. This will get all the children in the town thinking and talking about electric cookery and *asking their mothers and fathers why it is better than any other method.* This is very good publicity.

Planning the Campaign

Primary Factors. The size and cost of an advertising campaign and the selection of the mediums to be used must be determined from the size of the town or territory; and to what extent and how rapidly the central station desires to build a range load.

First, the campaign should be laid out in two parts. Part One should be a prospectus which will include:

1. An analysis of the town as a market for electric ranges.
2. Fundamental plans for the introduction of electric cookery.
3. Complete description of the sales policies adopted.
4. Synopsis of the advertising, time of the insertions and locations of the billboards and similar mediums.
5. Cost of the general publicity and the educational and direct sales work.
6. Sales results which are expected during the campaign.

Part Two is the active part of the campaign which consists of the copy and layouts for all the advertisements and other sales activity. It should also include the programs of the demonstrations, outlines of the different sales talks, the complete set of sales letters and the designs for the window displays.

Practically all copy should be written and laid out before the campaign actually begins. After the first activities are under way, everyone is so busy that little time will be found to do much planning and writing of additional advertising. If possible, it is a good plan to secure the assistance of an advertising agency or an experienced advertising man.

Appropriation. There are two ways of determining an advertising appropriation. The first is to take a certain percentage of last year's gross or net sales. The second is to appropriate a sufficient amount to adequately finance the campaign, this amount being based on the anticipated returns.

Percentages on which advertising is based vary widely—from ½% to 50% of gross sales—depending on sales policies and similar factors. Thus it is impossible to give any standard percentage or definite foundation upon which to base figures. Each sales manager must determine his own percentage, based on his own business judgment.

One thought must be kept in mind: That a great part of the range advertising must be educational. During the first year, a higher percentage of expenditure must be allowed in proportion to the sales than during the second year when the central station will begin to reap the benefit of the money it is obliged to spend in the beginning.

One method of figuring an electric range appropriation is offered however: Generously estimate the possible purchasers who through financial ability should own an electric range at the end of the twelve months after the campaign is begun. Figure the necessary selling prices of a popular type of range and then compute at least 10% for advertising. Multiply the computed amount by the number of ranges estimated as possible to sell during the twelve months and the result will be a reasonable appropriation If the town is unusually prosperous or if the possible customers are of a very select class, this percentage may easily be increased to 13%, 15% or even higher. The customer really pays for this advertising and in determining the percentage, it is simply a matter of estimating how much the sale will stand.

The range prospects for the year may be divided into three classes: Those who may buy immediately, those who may purchase a range within a few months and those who may not buy until electric cookery has been advertised to them for a longer period. Thus the appropriation must be applied at least two ways: To direct educational work and to continuous publicity.

At least 70% of the appropriation should be apportioned to the development of direct sales and the remainder to continuous advertising—day-in-and-day-out publicity.

Mediums. The advertising mediums should be of three kinds:

1. Educational advertising mediums such as:
   Booklets, private and public demonstrations, electrical shows, county fairs and such opportunities as loaning ranges to church affairs, bazaars, and similar places where women gather for entertainment yet where it is possible to present a lecture and a demonstration on electric cookery, and distribute advertising booklets.
2. Direct-result advertising mediums such as:
   Newspapers, window displays, lantern slides and special sales where some present such as a clover-leaf cooking set is given away with every range sold during a specified period.
3. General publicity mediums such as: Billboards, electric signs, metal signs, sides of delivery trucks and the backs of light bills, statements, letter heads and similar places.

Before selecting mediums, determine just where the sales effort is to be focused—step by step. For example: In the beginning, the best plan is to sell ranges to all the electrical men of the town, also all the managers and chefs of restaurants, clubs, hotels, hospitals and other institutions. Thus the first expenditures would be for "electric" dinners and illustrated lectures to these men. Read *Securing their Interest* on page 113.

Before placing the entire campaign, it is well to test the "pulling power" of the various mediums which are being contemplated to determine which are most efficient. For a description of "keying" and advertisement which will help in such work, see page 169. Ofttimes it is found that one medium is far more effective for range advertising than a more costly one and it is advisable to experiment before spending much money.

Preparation of Copy

Fundamentals. The purpose of a range advertisement is to create *consumer interest*—not consumer demand. It takes a salesman to actually consummate the sale. The advertisement only informs, educates and develops the public's mind to the point where an interest is aroused and a form of acceptance produced.

Advertisements should be considered as a series of lessons—as links in a chain. One lesson, one link or one advertisement is just one step; and it is the succession of these steps that is cumulative and profitable.

There are certain fundamental thoughts to bear in mind in the preparation of copy. The advertisement must do four things:

1. *Attract attention*—through a distinctive display which is secured with (1) a striking illustration; (2) little copy; (3) plainly readable type of good size; (4) liberal white space, throughout the ad between matter and border.
2. *Create interest*—with facts—not generalities; written from the customer's viewpoint—not the copy-writer's; use actual *news* photographs (or faithful drawings) of installations and demonstrations to make illustrations—not unnatural drawings of odd looking ranges.
3. *Develop desire*—by describing the advantages of electric cookery—not the range; the service and economy—not the price nor cost of operation; what the range will do for the reader—not what it did for someone else.
4. *Instill action*—by the offer of some special inducement for attending a lecture or demonstration, by a coupon in the corner of the advertisement which, *if returned within a limited time,* is good for some "special" booklet or folder. Use a stimulus to get replies. The majority of people are indifferent to commonplace announcements (ads) and without some incentive to prompt action or decision they may momentarily consider your ad but are very apt to delay and forget.

Always be definite with interesting facts and details—never meaningless generalities, bombastic statements or startling claims beyond the conception of the reader. Don't be technical. Base each piece of copy on one idea—have but *one* principal thought. It is difficult enough to make people read and understand *one* fact or statement. Be direct, clear, simple and concise. Avoid irrelevant, clever remarks and illogical humor. People do not read advertising to be amused. Buying—learning about electric ranges—is a serious matter. Be absolutely sincere. Be modest in claims. Confidence must be inspired because it is the winning factor in every sale.

Direct your thought toward a composite woman and continually keep her in mind. Appeal to her reason for economy's sake, to her pride of being up-to-date, to her leisure in adding hours to every day. Avoid adjectives. Make the copy just as short as possible. The shorter the better. Bear in mind that the United States is a nation of headline readers. Few people—unless they are intensely and unusually interested—read long advertisements.

Copy. Advertising copy is merely a sales talk on paper. Sales reasoning is identical in both printed advertising and sales conversation. The advertisement finds the eye and interest of *thousands of uninterested* persons where a sales talk is poured into the ear of *one interested* person. The purpose of an advertisement is to create interest and develop a desire for further information. The purpose of a sales talk is to round out the knowledge of a prospect and influence her to purchase. Thus the advertisement is step one and the sales talk step two—in making a sale.

The salesman presents the advantages of his goods, asks and answers questions; the advertisement not only presents the talk but anticipates the questions and answers. It also stimulates

the desire for additional information. Therefore a coupon attached to the corner of the advertisement is one good way to get direct, quick returns from an ad. Such a coupon is also used for "keying" the advertisement—learning what newspapers and what issues of these advertising mediums have the best pulling power. Sometimes Sunday papers are better than week day issues. Sometimes a Saturday night issue brings in a larger number of inquirers than a Wednesday morning paper. So "keying" an advertisement is the only way to find out what papers and what issues of these papers give the best returns. "Keying" is done by placing a number or letter in small type in the corner of the coupon—this "key" denoting the paper used and the date inserted.

In writing copy do it sincerely in a "come-on" spirit of welcome. Make it an honest "write-for-complete-information" invitation. The whole story cannot be told in one advertisement. So the reader must send for a booklet and folder. Bear in mind to describe:

The "kitchen" principles of electric cookery	—*NOT* the range itself.
Simplicity of operation	—*NOT* strong construction
Cleanliness	—*NOT* white enamel splashers
General economy	—*NOT* the low rate
Saving in work	—*NOT* the "moderate cost of purchase"
Saving in food	—*NOT* the monthly consumption of current
Newer, better ways	—*NOT* just "matchless" cookery
What it does for you	—*NOT* "thousands sold in America"
Easy payment plan	—*NOT* the guarantee

The copy should if possible, be connected with some local interest, some local activity, such as a Red Cross campaign, elec-

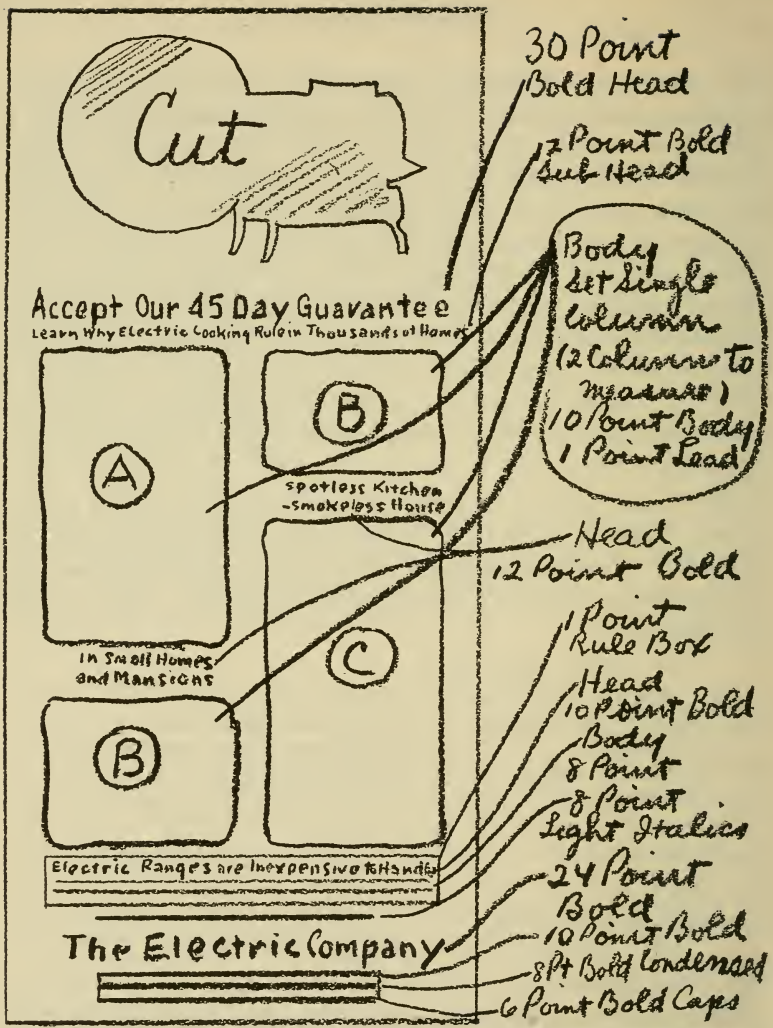


Illustration of a rough layout of an advertisement showing just what is required, with the typewritten copy, by a printer or newspaper compositor before setting up an advertisement. If the advertising man does not know type sizes he may leave these instructions to the printer.

trical show, church bazaar, home furnishing exhibit, carnival, food and fuel conservation drive or some similar movement.

Layout. When giving copy to a newspaper or printer to be set up, furnish a layout so he may know approximately what style and set-up is wanted.

As to typographical arrangement the printer usually knows what looks well *typographically*; but he doesn't always know, cannot possibly know, the idea in the advertiser's mind, how it should be set in type and arranged to convey that idea in printed form to the mind of the reader, in the way the advertiser intended. Therefore, illustrations of the advertiser's selling ideas should be given

Accept Our 45-Day Guarantee

Learn Why Electric Cooking Rules in Thousands of Homes

Our object is not to make money on electric ranges.

What we propose is to sell you the fuel—electric current—when you have bought a range.

If you purchase the range from us, we will install the necessary wiring, etc., at our own expense.

You need pay only a tenth of the price of the range at the time of purchase. Then cook all your meals on it 45 days.

If you keep the range after that, pay the balance monthly for 11 months. But if your range does not do what we claim, we will remove it and refund all money you have paid (except for electric current used).

We are willing to make this guarantee because we know that women who cook this way cannot be induced to return to inferior methods.

In Small Homes and Mansions

Electric cooking is favored by thousands of women in 3,500 communities in the United States.

Here in St. Louis where the rate is only 3 cents per kilowatt hour, the advantage of the electric way is tremendous.

And in hundreds of St. Louis homes—from cottages to magnificent residences, all food is prepared on electric ranges.

Families in small homes and mansions sit down to meals cooked as nutritiously and palatably as those set before kings.

Even the inexpensive cuts of meat will come out juicy, tender and delicious.

For electric cooking retains all savors and flavors. The fiber is thoroughly cooked — toughness disappears, and you serve new delights at very low cost.

Spotless Kitchen —Smokeless House

"I find electricity very much cleaner," writes one St. Louis housewife (name on request). "not only in the kitchen but throughout the house. It does away with fumes and the smoke created by the burning of grease in contact with a blaze."

Be free of the drudgery of scouring pots and pans—keep your kitchen cool and comfortable, with spotless ceilings and walls.

Save many hours a month—save food—save work and health and money.

All these advantages come with electric cooking.

Each week we are installing many electric ranges.

Now many more women will want them on our 45-day guarantee.

So don't put off. That might delay installation. Write, call or telephone for full information today.

Electric Ranges are Inexpensive to Operate

The average monthly bill for hundreds of our customers who use electric ranges is $4.56 for electric cooking and lighting combined. This is an average for all-sized families and homes.

Electricity Is Cheap in St. Louis

The Electric Company

Union Electric: Main Office, 12th and Locust
Branches: 4912 Delmar; 3028 N Grand; 3012 S. Grand
SIX OFFICES IN THE COUNTY

This is the finished advertisement which was laid-out on the opposite page.

the printer in the way of layout which will show the exact order of display wanted to tell the story in type as it has been carefully planned in the mind of the advertiser.

White space is one of the most valued adjuncts of advertising. Plenty of freedom should appear in the general set up of the type. Especially should there be a liberal space between the body of the ad (the text matter) and the border.

Not many central station managers are so conversant with type faces that they can designate different styles by name. But every manager knows the thought he intends to convey; and he further knows (by his familiarity with the newspapers) just how he would like to have his thoughts set up in type. He can clip from his daily paper just those type faces that he wants used at certain places. The technical names need not concern him—the printer will get his ideas just as well.

IN ALL advertising copy, demonstrations and sales conversation, avoid any reference to: Lightning, electric shock and live wires. Artists delight in drawing range advertisement borders, illustrations and decorative effects filled with flashes of lightning—*just the thing which should be omitted!* Censor all advertisements carefully, for such things create harmful impressions.

CHAPTER IX

SERVICE AND MAINTENANCE

Electric Cooking Service

Real Service. There are four divisions or stages to this service: Buying Service—helping the woman select a suitable range and educating her in its operation; Installation Service—getting the range quickly and satisfactorily installed; Current Service—the continuity of the supply of electricity 24 hours a day; Maintenance Service—in quickly making repairs that may be necessary.

Fundamentally the object is to keep the customer satisfied—*with Service*. The attitude must be assumed that she is always right; she can have anything within reason; the central station is her servant. So never displease; never argue; never make promises which cannot be fulfilled. *That is Service!*

Selling a range is about 10 percent salesmanship and 90 percent Service. A range must be properly installed, must receive the proper voltage, must be watched carefully for several weeks. There are a number of little things which might go wrong on a new electric range and it is the duty of the central station to voluntary learn of, and repair, these deficiencies. For example: A connection under a surface unit might become loose which would prevent it from developing maximum heat. Probably the annoyance might be so slight the user might not make a formal complaint but would be greatly dissatisfied with the service.

Watch each installation as though it meant the sale of 100 ranges, because during the first year of the campaign the central

station will find that many of its prospects have called up range owners and asked them all about their new cooking device. Any slight defect in service might influence the user to intimate that the range was not all that she had anticipated. And such a suggestion would not only injure one or many sales but also make the inquirers talk disparagingly and spread adverse ideas. So a range installation cannot be given too much care and attention. It is better to have five ranges giving satisfactory service than fifty ranges giving poor service.

Handling Complaints. A complaint should be investigated within an hour after it is made. Specialists should be employed on this kind of work rather than regular repair men who do not thoroughly understand it. There are so many things they should know and so many little "stunts" in making range repairs, that one or two specialists are better than five or six general repair men. Before repairing ranges, these specialists should be instructed in the construction and operation of the range by a competent manufacturer's salesman.

A customer should not be charged for repairs unless it is some damage due to direct carelessness, for which the manufacturer or central station is not responsible. In making replacements always give the customer the benefit of the doubt. Small mechanical or electrical repairs are generally so trivial in cost that it is better to do the work gratis rather than irritate the customer with a small bill. After a complaint has been adjusted, a pleasant-voiced woman should call up and ask if everything is satisfactory. This promotes good-will and shows that the central station is sincerely interested in pleasing the customer.

Pointers for Service Men. In a case of range trouble the first thing to do is to learn the size and style of the range. Take one

surface and one oven unit in case of a burn-out. Question the housewife about what happened—what she was doing when the trouble occurred. Test fuses, examine all connections, go over the switches. The trouble may be found in a loose connection, a melted fuse or a burned-out element. If a short circuit has occurred do not put in another fuse until you are sure that the trouble has been repaired. This can easily be determined by putting in 110-volt lamp on each side of the circuit in the fuse plug sockets.

Educating the New User

Home Demonstrations. The home demonstration is the second phase of central station service. Its importance is obvious. If the user lacks a thorough knowledge of the operation, the electric range will mean no more to her than the old fuel stove. She will *not* be satisfied. Disparaging talk will be disseminated.

Electric cookery can be inexpensive or expensive, superior or inferior—depending on the knowledge and care of the operator. The heat qualities, the operation, the control and results are different from fuel cookery. So the demonstrator should call immediately after the service has been turned on; and, in addition to other work, assist in the preparation of the first meal.

Three demonstrations have been found to be most effective. The first should show the fundamentals of electric range service:

How to read the meter
Method of figuring bill
Why fuses melt
Correct insertion of fuses
Employing regular electricians for repair work
Operation of main-line switch
How to utilize conserved heat
Necessity of cleaning utensils before using new range
Advantages of duplex or clover-leaf utensils

This demonstration should cover an explanation of the principles and construction of the range; difference between fuel and electric cookery and (as mentioned before) preparation of the first meal.

The second demonstration includes the description and use of the oven for baking. Third demonstration includes boiling, broiling, roasting, toasting and other cooking processes. These three demonstrations could be given at one time but three are suggested so the demonstrator will have the opportunity to make two additional calls which will enable her to see that the range is working properly, if the purchaser likes it and also answer any questions which might have come up during the first few days.

The demonstrator must cultivate the housewife. Win her friendliness. Be kind, sympathetic! Always agree with her. Don't criticise the kitchen or the home. Women are sensitive. Confine talk and work to the range and the cooking. In combating such practices as covering vegetables with water and the continuous basting, watching and stirring of food, be diplomatic and suggest rather than command. Women do not like to be told *how to cook*. But they can be *told how to use* their new range. Demonstrate every point. Bare description is inadequate.

Care should be taken not to overheat the oven, as it is built on the fireless cooker principle and the heat is cumulative. Overheating may injure the oven lining and will also be too hot for proper baking and roasting.

The Oven. Once every month the oven should be treated with olive oil or a similar substance to keep it sweet, clean and free from rust. When boiling vegetables or roasting meats, just sufficient water to cover the bottom of the pan should be used. Thus the food is cooked by the steam and the nutriment re-

tained—not boiled into the water to be drained away. See *Better Cooked Food*, page 135.

Advise the complete utilization of the oven heat. Suggest that a pan of apples can be placed in the oven after the other cookery is finished and baked on the stored heat.

Surface Units. When boiling, the current should be turned from "Full" to "Low" heat as soon as the water reaches the boiling point. The "Low" heat will maintain a sufficient temperature and reduce current consumption 75%. When cooking several vegetables on the top of the range, the best plan is to start the different pans on one surface unit which is kept at full heat. As foods reach the boiling point they should be transferred to other units which are turned to "Low" heat. Thus the temperature is maintained and a great deal of current is saved through not having to bring these several separate units to their "Full" heat.

Another current conservation plan is to heat water for dishes by the stored heat of the surface units. Generally the water is sufficiently heated when the meal is finished. Don't fail to *demonstrate* these points.

Surface units are not harmed by liquids boiling over on them. Heavy substances like molasses carbonize and can be removed with a light, non-metallic brush. Everything else including discolorations will be burned away by the intense heat. Enclosed-type surface units are of course merely wiped off.

Other Appliances. At the time of the final visit, the demonstrator should learn whether the housewife is interested in other domestic labor-saving devices. If so, literature should be sent and a sales letter describing the trial installation plan and the installment payment policy. Many appliances are sold in this way.

CHAPTER X

ELECTRIC WATER HEATERS

This chapter on electric water heating has been adapted from a recent report of the Engineering and Sales Department of one of the large electric range and water heater manufacturers. It is considered a complete and comprehensive analysis of the subject.

Water Heating

Load. One of the first questions which is invariably asked by the prospective range purchaser is "How shall I heat my water?" Many central stations which are aggressively merchandising electric ranges have believed that water heating is not necessarily involved in a range sale. They have become accustomed to telling the prospect that for a few dollars a coal or gas water heater can be installed which will give entirely satisfactory service.

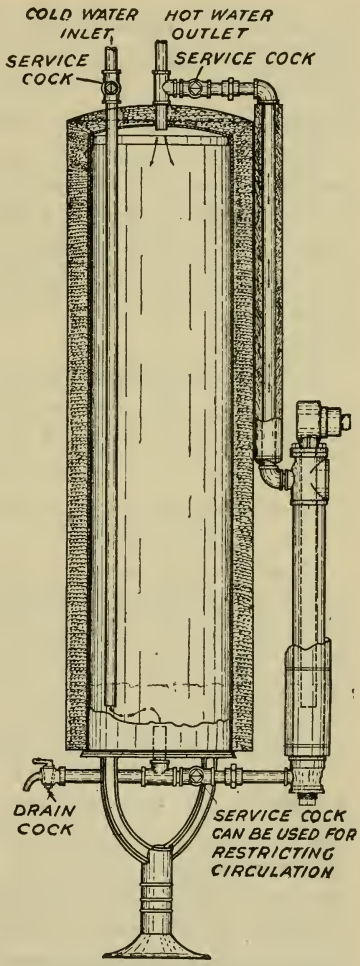
The central station which is handling its range work on this basis is displacing coal and gas ranges and is thereby multiplying three-fold its revenue from residence customers. But it is neglecting an additional three-fold revenue by avoiding a water heater installation which can be made without additional capital investment and which is thereby more valuable *in connection with the range load* than the range load itself. Like the range, the water heater does not make the customer pay out additional money for water heating. It is mainly a case of paying the central station instead of buying fuel.

Another reason why any central station which is now exploiting electric ranges should take up water heating lies in the fact that

many kitchens where an electric range is installed a gas or coal stove is retained for water heating purposes. The presence of these stoves in the kitchen leads to their frequent use especially in the Winter with the result that the full revenue is not derived from the electric range. Without a doubt the time has come when the central station should strive for the *All-Electric Kitchen.*

Storage System. Both from the standpoint of the central station and the householder, electric water heating may be classified under two systems: The Storage System and the Intermittent System. The Storage System maintains an available supply of hot water and it represents a continuous load for central station. The Intermittent System requires that the heater be turned on whenever hot water is wanted.

The Storage System involves the use of a heater and tank of sufficient capacity to give the required amount of water during



Outside-circulation type electric water heater

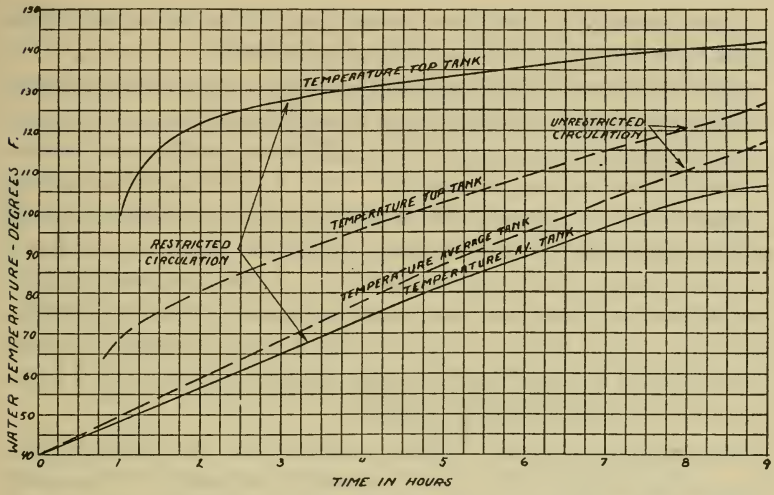
the entire 24 hours, as the heater usually operates during this entire period. Do not use a tank smaller than 30 gallons for a 600 watt heater. The size of the tank should be increased for storage heaters of higher wattage.

The electric energy is required to heat the water and also to supply the radiation losses while the water is being stored—but not used. The kilowatt demand for a storage water heater is quite low—in actual practice 600 to 1,000 watts. In such a case the connected load and the maximum demand are the same; and, being always in use, they provide the highest load factor, namely, 100%.

This attractive load enables the central station to sell current profitably at a low rate per kilowatt hour which makes a reasonable charge per month to the consumer. The low maximum demand means low transformer and copper costs. Because the water is always hot and ready for instant use, the consumer gets the best possible service.

The Storage System is especially desirable in the northern part of the United States. People living in cold climates require more hot water than the people in warm climates; hence the central station in order to get water heating business must find some means of making sales so that the monthly bill will not be excessive.

From the standpoint of conservation, the thermostatic control is ideal for the Storage System. It always provides plenty of hot water but prevents any waste of the electric current if the hot water is not used. The thermostat is interesting to the central station salesman who is unable to closely estimate the amount of hot water required. Without the thermostat, the quantity of hot water is fixed by the wattage selected. If it is too high, there is a waste and if it is too low the family will complain of insufficient supply.



Curve showing how hot water accumulates at the top of a storage tank when an outside-circulation type water heater is used.

With the thermostatic arrangement, a wattage is selected which will be amply high and which the thermostat will automatically cut off from time to time depending on the quantity of hot water used. In this way, the current is automatically adjusted to the requirements of the home. Cutting down the waste current will usually mean a saving in the cost of current, at the same time satisfactory service is insured.

When the water heater and range are installed the maximum demand is usually reduced by the thermostatic control, because the water is hot and the current off when the cooking is being done. For example: In the morning when the range is started for breakfast, the thermostat has cut off the water heating current, as the tank has accumulated sufficient hot water during the night and is full. The washing of breakfast dishes will

consume enough hot water to cause the current to be turned on again, but by this time the cooking is finished.

If no hot water is used during the day or night, the tank will automatically shut itself off when it becomes full instead of accumulating steam which would back up in the water pipes and waste a considerable amount of current. If the central station is selling current for water heating on a flat rate, the thermostat saves coal in the power house—or water power, as the case may be—yet the customer will pay as much for a thermostatically controlled heating system per month as for the simple Storage System, and the central station will reap the saving effected. On the other hand if the customer is being charged by a kilowatt hour rate, the bill will be much smaller.

Intermittent System. Water heaters for the Intermittent System are usually of 2 to 5 kilowatts' capacity. Compared with a steady demand of a storage heater of 600 to 1,000 watt capacity, the Intermittent Heater does not provide as good a load factor. The maximum demand for which a central station must provide and therefore accordingly charge, depends on the idiosyncrasies of the consumer. The customer gets the hot water service they desire and should be willing to pay for it. It is likely, however, that the diversity factor of a large number of water heaters because of short and irregular use would be high.

From the customer's standpoint it is evident that the service is not so good. He always has to plan ahead of time to provide himself with hot water, and the length of time he has to wait depends on the size of the heater. It might be quite satisfactory in households where only a small quantity of hot water is used, as in warm climates where people are not accustomed to much hot water. From the central station point of view, the Intermittent System is favored where the maximum demand is not

important, because the generating cost forms the larger portion of the cost per kilowatt hour. The use of a thermostat in connection with the Intermittent System will be of value chiefly as a protection against accidental over-heating of the heating unit, in case the switch is carelessly left on long enough to cause the generation of steam.

Factors Affecting Monthly Bill. The consumer's bill for water heating depends on the following factors, arranged in the order of their importance:

1. The *rate* by central stations for current used for water heating.
2. The *amount of hot water* used by the consumer; that is, the service given to the consumer, for which he will pay in proportion to what he gets. This is an important factor.
3. The *climate*; that is, the daily temperature, and especially the average temperature of the cold water. These conditions vary so widely over the United States that each central station must consider its own climatic conditions.
4. The *efficiency* of the water heating system; that is, tank lagging, pipe lagging, etc. (The efficiency with which heat is transmitted from heating unit to water, whether outside circulation, inside circulation or clamp-on, etc., is of little importance, because it is nearly 100% in any case.)

If a Storage System, the number of kilowatt hours used per month depends on whether the salesman properly estimated the size of heater for the family's requirements. This difficulty is not present if a thermostat is used, as it automatically supplies only enough hot water to meet the actual requirements.

Efficiency and Time to Heat Water. Much misleading information has been published on water heater efficiency because the authors have not considered actual working conditions. For example: It is often stated that the efficiency of an immersion unit is 100%. It is true that, if one considers only the direct

transmission of heat from an immersion unit to the water, the efficiency is almost 100%.

But the practical efficiency takes into consideration the whole system, including not only the heating unit, but the insulation on the tank, piping, and quantity of hot water used. Practical efficiency is that at which the electric heater furnishes hot water at the faucet. A wrong impression is created if one considers merely the efficiency measured by heating a tank of water from cold to hot. What the household does in actual practice is to draw water at different times and in various amounts, all through the day, so that practical efficiency is determined by using just such 24-hour cycles of use.

In order to get a standard test by which different systems and equipments could be compared, the following cycle was selected:

STANDARD 24-HOUR CYCLE

Time	Gallons Hot Water Drawn	Purpose	Time	Gallons Hot Water Drawn	Purpose
7:00 A.M.	1.0	Cooking Breakfast.	1:30 P.M.	5.0	Washing Luncheon Dishes.
7:15 A.M.	5.0	Bathroom.			
8:30 A.M.	5.0	Washing Breakfast Dishes.	3:00 P.M.	2.0	Bathroom or Cooking.
			4:30 P.M.	2.0	Cooking Dinner.
10:30 A.M.	2.0	Cooking Luncheon.	5:15 P.M.	5.0	Bathroom.
11:30 A.M.	2.0	Cooking Luncheon.	6:00 P.M.	5.0	Washing Dinner Dishes.
12:00 M.	5.0	Bathroom.			
			Remainder for Baths.		

"How much hot water can I get with a heater of such a size?" is a question commonly asked, but "hot water" is an indefinite thing. To answer the question one must know the temperature of the "hot water" wanted. Bath water at 104 degrees F. is quite hot enough for most people. Water for washing dishes should be about 150 degrees F. If hot water is supplied at this or a higher temperature, cooler water can readily be had by mixing the hot water with cold water. (An excessive temperature at the faucet causes waste of heat.)

The familiar question, "How long does it take to get hot water?" is like the previous question, "How much hot water can I get?" To get the answer one must always know the temperature.

The temperatures of 104 degrees F. and 150 degrees F. have been previously referred to as suitable for bath and dish-washing respectively. Show the time required to get various amounts of hot water with several sizes of heating units. The results would be greatly changed by variations in the temperature of the feed water—the warmer the feed water, the more hot water can be obtained with a given amount of electric energy.

TABLE SHOWING EFFICIENCY AND GALLONS PER 24 HOURS OF WATER HEATED TO 104° F.

(36-gal. tank covered with 1" hair felt insulation on tank and 1" magnesia covering circulation piping. Cold water, 39° F. Faucet close to tank.)

Kind of System	Kind of Equipment	Watts	Efficiency	No. Gals. Hot Water Available at 104° F. per 24 Hours
Storage.....	Outside circulation....	600	82%	75
Storage.....	Outside circulation ...	1000	76%	117
Storage.....	"Clamp-on"..... ...	750	78%	89
Intermittent	Outside circulation ...	3000	73%	330
Intermittent	Outside circulation ...	5000	69%	525

Types of Heaters

Choosing Equipment. Having decided on the system—whether Storage or Intermittent—there remains the question of the proper equipment to use. The equipment may be classified under three applications:

1. Outside-Circulation Type Heater
2. Inside-Circulation Type Heater
3. "Clamp-on" Type Heater

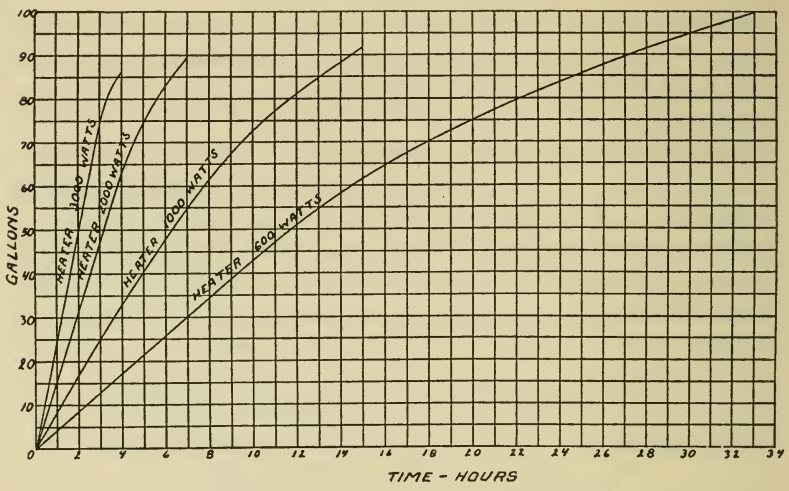


Chart showing time required to heat water to 104° F.

The first two are applied to both Storage and Intermittent Systems; the "clamp-on" is satisfactory for the storage system only.

Outside-Circulation Type Water Heater. This type is shown on page 179 for both storage and intermittent. The water heater is connected by piping, outside any standard tank. It is easily applied to a tank already in the house without any change in the tank itself, but, of course, it requires the services of a plumber to make the pipe connections.

Because hot water is lighter than cold water, it rises, and the water automatically circulates through the tank and water heater in the direction of the arrows shown. By delivering the hot water from the heater to the top of the tank, where it naturally accumulates, it is not necessary to wait to heat the entire tank of hot water when only a small quantity is wanted. This

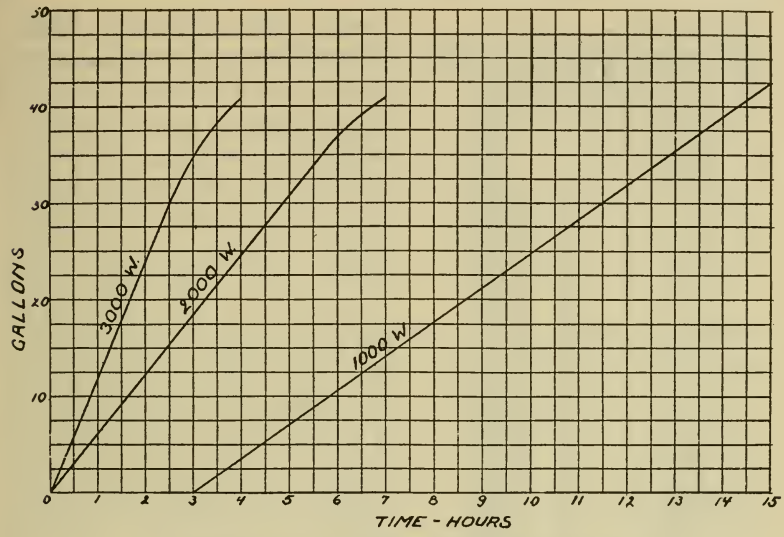
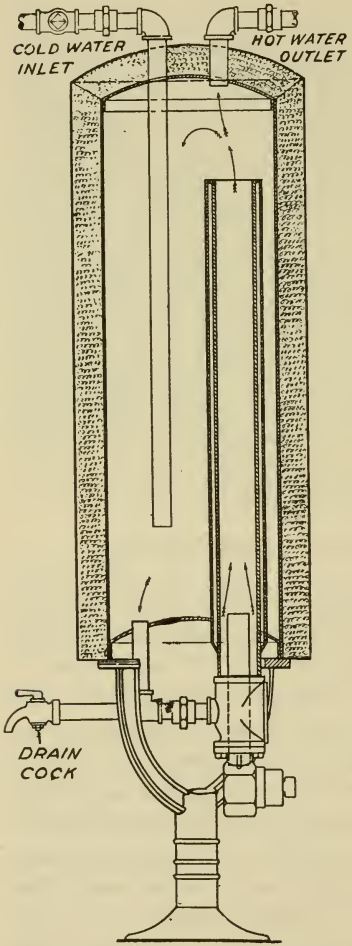


Chart showing time required to heat water to 150° F.

effect of quickly accumulating a small quantity of hot water in the top of the tank can be increased by restricting the flow in the circulation piping. In illustration on page 179, service cocks are shown on each side of the heater. Partly close the lower one; the result is that the water passes more slowly over the heating unit and is therefore heated to a higher temperature. Illustration on page 181 shows graphically how the water in the top of the tank is much hotter than the average temperature of the water. (Be careful not to adjust to such a small orifice that steam is formed.) A restrictor cannot be recommended if the water has much of a tendency to form scale, because in such a case, the orifice in the service cock will quickly clog and the unit will coat itself with scale in a short time.



Inside-circulation type electric water heater.

Inside-Circulation Type Water Heater. Illustration here shows the immersion unit installed inside a special tank in such a way as to get the water circulation as shown by the arrows. The double-walled pipe with air jacket around the immersion unit causes the desired circulation and accumulation of hot water in the top of the tank. The chief advantage of this is that water heater and tank are a self-contained unit with no exterior circulation piping. It is slightly more efficient and much neater in appearance than the outside circulation type.

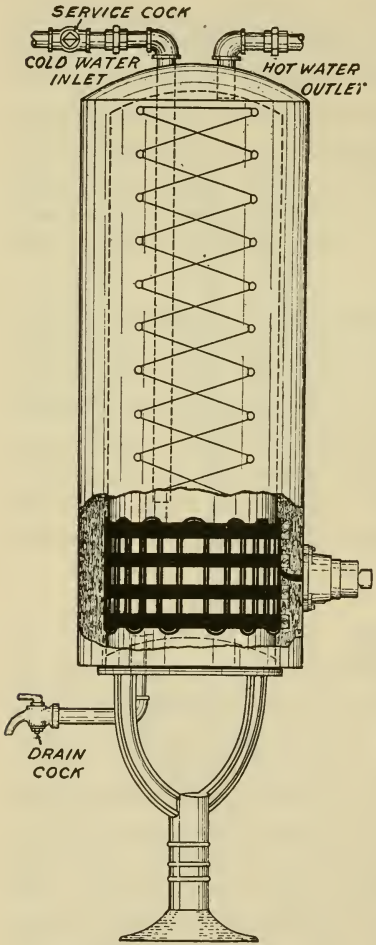
The special field of the inside-circulation type water heater is for installation in new buildings where there is no question of utilizing old coal or gas-heated tanks. Like the outside-circulation water heater, the water circulation can be restricted by reducing the flow through the short piping under the tank. To remove scale from the unit, the water is first drawn from the tank and the four bolts removed

from the flange near the head of the unit. The unit is removed and the scale cracked off with a hammer. Always install the tank high enough above the floor so that the unit is easily removed.

This form of heater is not to be confused with a mere immersion tank heater which many people suppose to be quite efficient. If an immersion heater is stuck into the side or bottom of a tank without any special provision for circulating the water, it will take a very long time to get hot water because the tank will heat so gradually.

In the inside-circulation water heater, the circulation is effected by means of a double-walled, air-jacketed pipe inside the tank. The heater is placed inside this circulation pipe, and as the water is heated it rises to the top of the tank and accumulates there; the air-jacket on the pipe acting as a heat insulator and prevent the ascending column of hot water from being chilled. In this way the double circulation pipe shown inside the tank causes a similar circulation to that of the single pipe outside the tank in the outside circulation system.

"Clamp-on" Type Water Heater. This form of heater, as shown on page 190, is readily installed on the tank already in the house, without any change in the tank, and does not even require the services of a plumber. It is simply "clamped-on" the lower part of the tank—hence its name. The heat is applied through the wall of the tank, which, of course, must be well lagged or insulated. A layer of asbestos felt at least three-quarters of an inch thick, is placed over the heating unit only and the usual tank insulation laced over the entire tank, heater and asbestos. The layer of non-combustible asbestos insulation is between the unit and ordinary tank insulation to prevent the latter burning. As there is an extra thickness at the unit, the outer insulation jacket



"Clamp-on" type electric water heater.

should have part of its material cut away so as to allow the jacket to meet properly, and also to prevent an unsightly bulge at the unit. The absence of piping makes a very attractive installation.

The formation of scale inside the tank with such a heater is so slow that it will probably never cause trouble because the heat is distributed over such a large area at a moderate temperature. In case any amount of scale should form after years of use, the position of the heater could be changed on the tank.

There are no special means for circulating the water; therefore, to heat any water in the tank, all must be heated. Thus the water will only heat gradually and this form of heater is one of the best for the Storage System.

The construction of the heater is extremely simple, consisting of a flat coil of sheath wire. The heater carries a terminal box similar to that used with the circulation heater, and is generally furnished with or without

snap switch. Clamping straps and bolts are furnished with the heater, adjustable to fit any size of tank.

Importance of Heat Insulation. The effect of lagging the tank is so great that electric water heating is not feasible without proper insulation. An electric water heater must never be installed unless the tank is *well* heat-insulated.

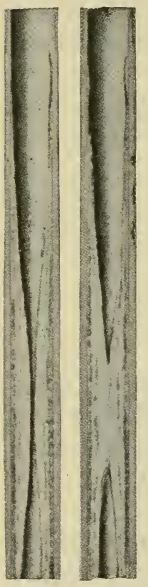
The following comparative figures, given for the Storage System, illustrate the importance of lagging for all systems:

	600 Watts	1000 Watts
Efficiency of lagged tank, 1″ hair felt insulation (Storage System) outside circulation equipment	82%	76%
Efficiency of same tank without lagging (Storage System) outside circulation equipment	48%	46%

Reducing the above figures to watts, it is obvious that by using an unlagged tank, as compared to one properly lagged, one would waste 214 watts steadily day and night with a 600-watt heater. With a 1000-watt heater, 360 watts would be wasted.

Scale Formation. Some localities are especially troubled by the excessive tendency of the water to form scale in water heaters—notably the Inter-Mountain District, and especially Utah and Nevada. Generally speaking, the eastern part of the United States is not seriously troubled, but it is impossible to make any broad geographical classification. Each central station will look into this question of scale formation for itself. In some cities in the West where there are two sources of water supply, it is found that one source of water may give serious trouble, while the other is comparatively free from scale-forming tendencies.

Where much scale is present, a heater should be selected which may be easily cleaned and which is not easily damaged by the process. Experience has demonstrated that a water heater should not be made like a tube with the heating unit surrounding the water. Illustration here shows how scale collects in such a heater, from which it cannot be removed.



Pipes showing two months' scale formation in old-time water heater.

In all but the worst conditions, the scale problem is practically solved by the immersion unit—whether inside-circulation or outside-circulation—which can be readily removed from the water heater and the scale cracked off with a hammer. With the immersion unit the scale accumulates on the outside instead of the inside, and this makes the difference between easy cleaning and impossible cleaning. Of course, the scale must not be allowed to accumulate too thickly, for while the operating efficiency of the heater is not appreciably affected, inasmuch as the heater is surrounded by water, yet the heating unit will have to operate at a higher temperature to force the heat through the wall of scale and this will have a tendency to shorten the life of the unit. It is evident that long life from an immersion unit cannot be expected if it is covered with a thick layer of scale, because the scale is a heat insulator.

An immersion unit, in order to be satisfactory in use with scale-forming water, must also be of such rugged and simple mechanical construction as to stand the process of cleaning, and to be easily cleaned. One mechanically weak would be damaged

if not destroyed, and one with irregular surfaces would be impossible to clean. A heater should also be selected that does not operate at too high a density of watts per square inch of heating surface because it would then accumulate scale too rapidly.

The "clamp-on" type of heater is recommended when there is serious trouble from scale. This kind of unit heats the water from so large a surface that no trouble has been experienced from scale formation.

"We are glad to report that up to April 8th, 1918, the number of ranges installed on our system is now approximately 2,000 with approximately 1,200 water heaters. In other words, 60% of our installations are *all* electric kitchens. During the campaign starting January 1st, 1918, and ending April 1st, 1918, we sold 324 ranges and 533 water heaters. The estimated revenue on the 324 ranges is $14,300 and on the 533 water heaters is $14,262 or a net gain in the range and water heater business for the three months' period of $28,562. The water heater installations are the things which count as the capital expenditure is really made for the ranges and the revenue from the water heaters which nearly equals the revenue from the ranges, is received without additional capital expenditure."

M. C. Osborn, Washington Water Power Company, Spokane.

CHAPTER XI

COMMERCIAL COOKING APPARATUS

Electric Bread Baking

Development. The electric bread baking oven is the most efficient oven of its kind on the market. Aggressive central stations have realized its great possibilities as a load builder and revenue producer and have earnestly solicited and secured this class of business. Today electric bread baking ovens are in operation *throughout* the United States. These installations are in bakeries, hotels, restaurants, hospitals, clubs and other various kinds of public and private institutions.

Advantages. The advantages of electric baking are: The superior quality of the product and the advertising value and prestige of operating a modern and sanitary bakery, with the resultant increased business. The advantages of the electric bread oven itself are described in the next subject.

Breads and pastries come from the electric oven purer in quality, finer in texture, more uniform in size and more evenly browned because flame, fumes, soot, brick dust and air currents are eliminated. There is a further advantage in the saving of material. Mixtures may be smaller to get the same quantity of baked goods because through the elimination of air currents, the bread and pastry does not dry as much as in a fuel oven. Thus in mixing dough, an allowance for moisture evaporation is not necessary. In a shop where a large amount of baking is done each day, the saving is surprisingly large.

Complete electric kitchen installed in a large cafeteria in the West. Note the small space occupied by the electric oven which does all the baking for this large restaurant.

For example: In Shay's Cafeteria in Salt Lake City, the bakers find it possible to cut down the size of their Parker House rolls from four to three-and-a-half inches in dough size and eliminate the milk in cakes. They find that the same results are obtained in the electric oven without these materials as were produced in the old gas oven when the rolls were larger and milk was used.

Electrically baked bread is *quality* bread because it is baked by the cleanest and most perfect method. The electrical method not only wins the housewife who buys bakery bread but it wins the more fastidious woman who does her own baking. When a bakery

or restaurant installs a bake oven, it has a very logical reason for advertising this new method.

Many installations have either a permanent window exhibit of the bake oven or mention electrically-cooked food on the menu and in their advertising. Experts have conservatively estimated that it is worth at least $100 a month to any fair-sized hotel, restaurant or bakery to advertise that its food is cooked by the electrical method. When a person reads "electrically-cooked" it instantly brings to their mind cleanliness and perfection in results.

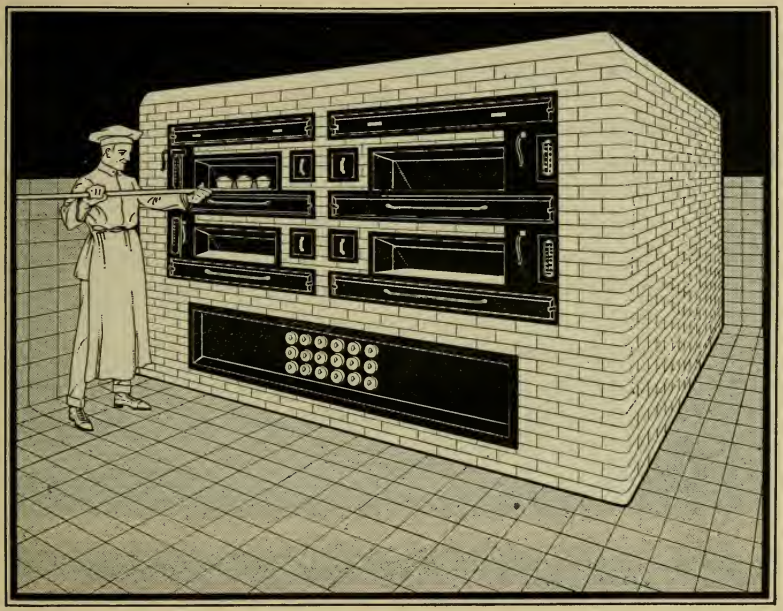
People go out of their way to get *good* food and hotels and restaurants which have installed electrical appliances have been known to draw trade from other establishments.

Bread Baking Ovens

Capacities. The commercial electric bread baking oven is made in many sizes, from the small portable oven with a capacity of 30 one-pound loaves of bread to the big brick oven with a capacity of 600 one-pound loaves at one baking.

Electric ovens are constructed in cabinet form and are smaller in size than "fuel" ovens of the same capacity. Small-sized ovens are generally recommended by salesmen so the baking surface will not be larger than absolutely necessary. It is much more economical to maintain a baking temperature in a small oven and bake three batches of dough than it is to heat a large oven for one batch. This is one of the factors in the economy of the electric oven and a sales point which should be thoroughly studied by central station men.

Advantages. Advantages of the oven are: Simplicity of operation, absolute control, perfect heat distribution, saving in labor, time, floor space and fuel storage bins and the most efficient utilization of heat. The ovens are operated by three-heat



Modern type of large electric bread-baking oven. The capacity of this oven is 600 one-pound loaves of bread at one time. Connected load is approximately 80 kw-hrs.

switches and any desired regulation of temperature is quickly secured. The handling of fuel and ashes is eliminated and the necessity of keeping the fire alive all night for the early morning baking is unnecessary.

Current is used only when the oven is baking. The heat is not "killed" after each batch and no time is lost in re-heating. As soon as one batch of bread is removed another batch can be loaded immediately. As the "firing" is eliminated and fuel handling and flue cleaning are avoided, there is an appreciable saving in labor.

For example: In Shay's Cafeteria in Salt Lake City, which serves 1500 persons a day, their former gas oven required two bakers and an assistant. After the electric oven was installed, only one baker and an assistant were needed and approximately 300 percent greater capacity was secured.

The entire oven is under absolute control at all times. No dampers have to be operated. As there is no dust nor dirty flues, the electric oven is well adapted for display baking in show windows and booths in department stores, exhibits and similar places.

As the construction is usually in deck form, the electric oven occupies one-quarter to one-half the floor space of the brick fuel oven. Owing to its comparatively light weight, no special, heavy construction of the building is required.

Commercial Installations

Progress. Electric restaurant apparatus has been developed to such an extent that commercial cookery is today on a sound business basis both from the standpoint of the user and the central station. There are hundreds of installations throughout the United States. As a rule, they are in the more prominent and progressive hotels and restaurants. Not only have hotels and restaurants adopted electric cookery but also clubs, colleges, domestic science classes, hospitals and other public institutions.

Advantages. The advantages of commercial cookery are the same as in domestic cookery but there are other favorable factors in the commercial installation. For example: The electric appliance eliminates the continuous fire for an occasional order. Current is used only when cooking is done and the heat is applied directly to the food.

Commercial electric range installation in a large apartment house kitchen in the South. Colored people, too, delight in cooking electrically. The steam table in the foreground is also electrically heated.

Commercial kitchens equipped with apparatus using electricity are cooler than those using gas or solid fuel. The apparatus insures greater cleanliness and takes up less room which is particularly advantageous in high-rent districts where kitchen space must be limited. But the most important advantage of electric baking and cooking is the superior product secured. See *Better Cooked Food*, page 135.

The electrical method is particularly adapted to high-temperature operations such as broiling, frying, roasting and baking all of which are accomplished rapidly and with more efficiency and certainty than is possible with the old methods.

There is also a saving in the shrinkage of meat which is very

appreciable. For example: In a cafeteria in California where all the cooking is done electrically, it is estimated that the saving in the shrinkage of meat alone pays for the cost of the lighting and cooking current which averages more than $100 a month. Then, too, there is the advertising value which is described under *Electric Bread Baking* on page 194.

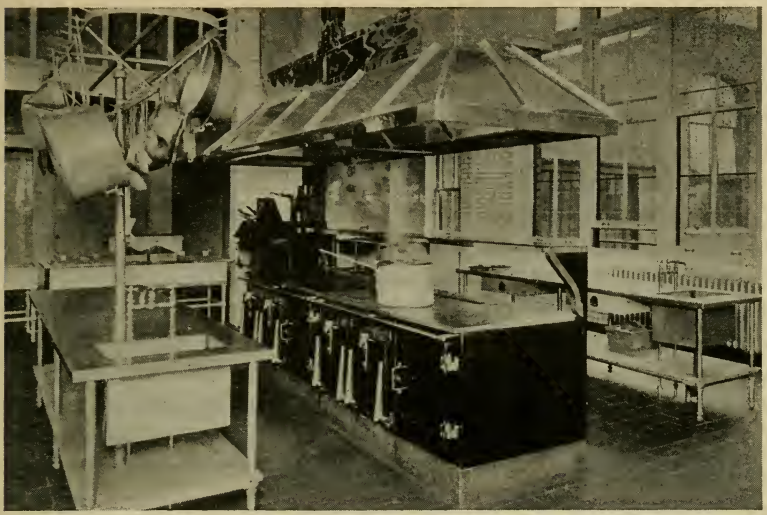
Recent Roasting Test. The following test was recently made in the kitchens of J. Lyons and Company, one of the large restaurateurs of London, England. The cooking was done in an electric oven by a chef who was inexperienced with this apparatus. Four sirloins of rather fatty beef were used. *Note that the average loss in shrinkage was only* 1.49 *ounces per pound or* 9.31 *per cent.*

OVEN OPERATIONS

Time	*Meter*	*Watts*	*Temp.*	*Remarks*
11.05	2635	5250	48	Switched "Full"
11.25		5250	342	4 joints in oven
11.30		5250	324	
12.10		5250	418	
12.25	2642	2960	440	Switched "Medium"
1.0)		2960	400	
1.55		2960	400	Removed No. 4 joint
2.35		2960	410	Removed No. 2 joint
2.45	2649	2960	400	Removed Nos. 1 and 3 joints Switched "Off"

FOUR SIRLOINS OF BEEF

Initial Weight	*Final Weight*	*Average Loss*	*Remarks*
No. 1 Joint 34 lbs. 12 ozs.	29 lbs. 4 ozs.	15.8%	Drippings
No. 2 Joint 28 lbs. 0 ozs.	22 lbs. 5 ozs.	20.2%	weighed
No. 3 Joint 36 lbs. 8 ozs.	29 lbs. 5 ozs.	19.6%	12 lbs.
No. 4 Joint 26 lbs. 4 ozs.	21 lbs. 1 ozs.	19.6%	
125 lbs. 8 ozs	101 lbs. 15 ozs.	18.8%	



Complete electric kitchen installed in a large Detroit Hospital. Such an installation not only includes electric ranges but bake ovens, bread-mixing machinery, electric griddles, kettles, broilers, toasters and similar apparatus.

Restaurant Cooking Apparatus

Kinds on Market. The commercial cooking appliances in general use today are:

Restaurant Ranges
Large Baking Ovens
Toasters
Broilers
Plate and Food Warmers
Frying Griddles
Steam Table Heaters
Coffee Urn Heaters
Frying Kettles
Waffle Irons

Planning Installations. The success of a commercial installation depends upon the selection of the apparatus, the rate charged for the electric current and the care with which the equipment is operated. Before ordering the devices it is well for

the central station engineer to assist the manager of the restaurant in estimating just what size range, bake oven, steam table and other equipment is required. If the restaurateur does it himself the mistake will perhaps be made of ordering appliances that are too large and consume an unnecessary amount of current.

An important factor in the success of the installation is the chef or operator. In some cases he is unfriendly in the beginning to this new method and will do everything within his power to oppose its use. The most common way of deliberately discouraging the use of electrically-heated appliances is to leave the current on "High" when the apparatus is not in use. At the end of the month the bill is much higher than the central station man estimated and the showing may lead to the discontinuance of the use of the apparatus. So it is important to earn the goodwill of the chef.

Rates and Revenue. Commercial cooking appliances provide a very good load factor because they are used almost continuously from early in the morning until late at night. The business is very desirable and central stations can afford to make very attractive rates for it. The rate must of course be determined by each central station and should be based on the connected load, the average demand and the amount of revenue possible. For example: A large hotel using many thousand kilowatt hours per month should naturally be granted a lower rate than a small restaurant with a few lights and one small range. No representative rates are available because they vary with every installation. They are believed however to average between 1½ cents and 2½ cents per kilowatt hour for this class of business.

ADDENDUM I

ELECTRICAL COOKING EQUIPMENT IN RESTAURANT KITCHENS

An article prepared by the Society for Electrical Development for publication in "The American Restaurant" magazine.

During the years from 1916 to 1920, the records of one manufacturer building kitchen equipment operated by coal and gas fuel as well as electrical equipment show that his sales of electrical equipment increased, respectively, to 2.5, 4.5, 7.0, 14.5 and 48.0 times those made in 1915. This record, surprising as it is, is not dissimilar to those made by other manufacturers of high-

International Company Baking School, Baltimore, Md., all equipment is electrical.

grade and efficient heavy duty equipment. Growing familiarity with the requirements for economical operation of heavy duty equipment, first by the manufacturer and second by the user of the equipment, has made such records possible and has firmly established electrical cooking equipment as a present-day essential for the economically operated restaurant.

Electric ranges, bake ovens, grills, kettles and the many other varieties of kitchen equipment can be operated with greater thermal efficiency than can similar equipment heated by coal or gas, so that the operating economy of the electrical apparatus compares favorably with that of fuel heated apparatus. The fundamental reason for this is that the heat generated can be much more successfully conserved—a far greater proportion productively utilized—than in the case of either gas or coal heat. The familiar principles of the fireless cooker—that is, the conservation to the utmost of the available heat—can be and are taken advantage of in properly constructed electrical cooking equipment. Furthermore, electrical heat can be closely localized and is under instant control, both manually and automatically.

Restaurant Ranges. The electric range is probably the first piece of heavy duty equipment considered in connection with a kitchen installation, although the range, being a composite tool, in that it is used for a variety of cooking operations, does not lend itself to all the refinements which more specialized equipment intended for one operation—such as a bake oven—may include. The range, as developed for restaurant use, consists of one or more units, each with an oven and several hot plates, of heavy, rugged construction, with the ovens thoroughly insulated against loss of heat. The oven is furnished usually with upper and lower heating elements, of 3 or 4 kilowatt capacity each and

Electric restaurant oven for baking rolls.

the hot plates—generally four in number—with 4 kilowatt heating elements controlled by independent switches, making a total connected load for each complete range unit of about 22 kilowatts. The switches controlling the various heating elements also regulate the wattage consumption in three stages—high, medium and low heat—so that a wide range of graduation of temperature is quickly and easily secured. In fact, the temperature regulation may be made automatic.

The oven of the electric range of approved design, with its heavy, well-balanced and thoroughly insulated door, is virtually heat-tight, the radiation loss being reduced to a negligible amount, so that when once brought to heat it consumes thereafter very little current. The hot plates are also highly efficient,

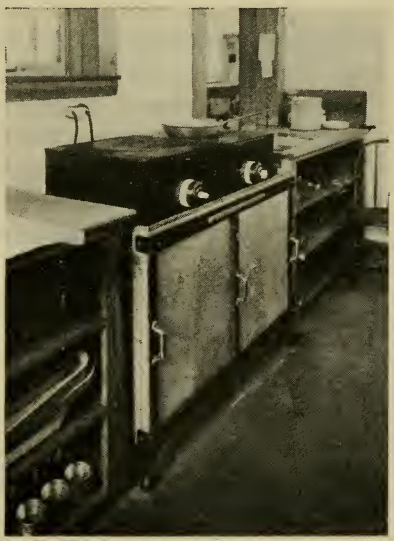
for their heat is not only under instant control but is definitely localized, so that with well-fitting cooking utensils little of the heat generated is dissipated.

In economy of operation, the electric range has proved its merit in perhaps no more striking manner than in household use where its service is necessarily very much more intermittent than in a restaurant kitchen. The average current consumption for the thousands of domestic electric ranges scattered all over the country—ranges upon which the entire cooking for the family is performed—is about 125 kilowatt hours per month for a family of five. That is, between two-tenths and three-tenths of a kilowatt hour per meal, per person. In the restaurant kitchen, the average cost of current used for preparing the average complete meal per person is less than one-half cent.

Bake Ovens. The electric bake oven is an example of a one-service device which exemplifies perhaps even more forcibly the value and economy of electricity as a cooking medium. Today the electric bake oven is unquestionably the most perfect baking chamber, rendering the greatest service for the least expenditure of labor and time and producing the best baked products at an extremely low cost. Extravagant as these statements may appear, they are not exaggerated, for the electric bake oven permits the maximum utilization and conservation of the heat generated. Each compartment has a heating element above and below operated by an independent switch regulating the temperature with extreme sensitiveness. Each compartment is thoroughly insulated against dissipation of heat and is practically air-tight, so that the baking is conducted under conditions of constant and evenly distributed heat without loss of vapor or volatile ingredients of the food.

Bake ovens with capacities of from thirty up to six hundred one-pound loaves of bread per bake are on the market at the present time, the larger ovens being frequently of the stationary brick built-in type and the smaller ones of the portable box variety. It will take from forty-five to ninety minutes to bring a cold oven up to a baking heat of 400 or 500 degrees, F., with the heating elements on high, after which the maintenance of any desired temperature entails the use of very little current. A thirty-loaf oven has a maximum consumption of only 5 kilowatts, while the 600-loaf oven has a limiting consumption of 80 kilowatts. An oven of the latter size, 600 loaves per bake, in a bakery at Ocean City, N. J., turns out an average of about 10,000 pounds of bread a day.

Broilers and other Appliances. Another one-service device that has found great favor in the restaurant kitchen is the electric broiler. The usual sizes of this equipment, rated in maximum current consumptions, are from 5 to 15 kilowatt. Exactly what this means is well indicated by the cooking capacity, for example, of a 5-kilowatt broiler. Such a unit has a capacity of about thirty-six 2-pound steaks per hour and a broiling area sufficient to cook 12 pounds of steak 1½ inches thick at one time.



Electric griddle operated in service pantry of a New Hampshire hotel

Griddles, toasters, plate warmers and an almost endless variety of kettles, urns, special stoves and miscellaneous kitchen utensils could be mentioned, but the foregoing, exemplifying both composite and one-service equipment, should suffice to show that electrical cooking equipment has well passed the experimental stage and must be investigated, at least, by every progressive restaurateur.

Costs of Electric Cooking. Operating costs are always of interest, however, particularly when comparisons can be made with familiar records. An excellent example is the experience of a hotel in Maine where electric kitchen and bakery equipment was installed to replace coal and gas burning equipment. The installation consisted of three electric ranges, one bake oven, a broiler, griddle, toaster and plate warmer. The cost of operating the electric equipment for the first month amounted to $215 and for the first twenty days of the second month to $110, indicating that the average monthly cost will probably be well under $200. Prior to the installation, the average monthly fuel bill for the superseded fuel-burning equipment was as follows:

Coal	$175.00
Charcoal	38.40
Gas	46.50
	$259.90 per month

It will be noted that no charge is included in these figures for disposal of ashes, extra labor, cleaning and the numerous losses which cannot be entirely avoided when cooking by fuel.

An installation in a southern cafeteria where about 3,000 meals are served a day, and where the average customer's meal

check is only about 65 cents, is also worthy of note. The installation consists of four electric ranges, two bake ovens, one griddle and one electric toaster, making a total connected load of 149 kilowatts. The average demand is about 100 kilowatts and the average monthly consumption about 25,000 kilowatt hours. As the rate charged for electricity is 1.8 cents per kilowatt-hour, the monthly bill for electricity averages $450. The original cost of the installation was $4,000, so with a monthly income of some $58,500 the investment can hardly be considered excessive. Assuming 75,000 meals cooked per month, the cost per meal would be 0.6 cent.

CHAPTER XII

GENERAL RANGE INFORMATION

Standardized Names of Range Parts

This nomenclature contains only the parts which are included in the general construction of all standard makes of electric ranges. It has been approved by the range manufacturers.

Electric Range Surface Unit	Heating units of the cooking top—either open or enclosed type.
Simmering Unit	Low wattage unit of the cookery top.
Resistance Wire	Heating wire of the surface and oven units.
Sheath Wire	Metal-sheathed insulated resistance wire used in the construction of the enclosed-type surface and oven units of certain makes of ranges.
Surface Unit Brick	Grooved porcelain or composition brick which holds the heating wire of open-type surface units.
Insulating Receptacle	Composition cup which supports and insulates the surface unit. Certain makes of ranges.
Surface Coil Frame	Supporting frame of the heating wire of a reflected-heat type surface unit.

Asbestos Wire	Asbestos insulated wire used in the interior of the range.
Range Terminal Block	Porcelain or composition block used in connecting the service leads to range wiring.
Cooking Top	Metal top or flat section of the range where the open cookery is done.
Drip Pan	Sheet metal pan used to catch drippings, crumbs and other waste.
Automatic Range	Range in which either or both the surface and oven units may be turned on by a clock and off by a thermostat operating through the medium of a circuit breaker.
Oven Unit	Heating unit of the oven.
Baffle Plate	Metal plate placed over the bottom oven unit to distribute the heat. Certain makes of ranges only.
Oven Terminal Block	Insulating block which carries the terminal wires through the oven wall. Certain makes of ranges.
Oven Terminal Receptacle	Receptacle in which the oven unit plug is inserted. In certain makes only.
Oven Vent	Small opening generally located in the back wall of the oven for the escape of excessive moisture with a minimum of loss of heat.
Oven Lining	Interior metal walls of the oven.
Oven Insulation	Material packed between the exterior and interior metal walls.
Oven Racks	

Oven Ledges	Back supports on the sides of the oven and broiler compartments.
Heat Indicator	
Oven Door	
Door Handle	
Door Catch	
Door Spring	
Door Hinge	
Broiler Compartment	
Broiler Unit	
Broiler Vent	
Broiler Pan	
Broiler Pan Rack	
Conservation Compartment	Extra compartment in some makes of ranges used for the long-time cooking of such foods as soups, stews, pot roasts and baked beans. Thickly insulated; heated by a low wattage unit and is without a vent. In other words, it is a fireless cooker attached to the range.
Warming Compartment	Compartment used to warm foods and dishes. Located either above or below the oven from which it derives its heat.
Snap Switch	Switch controlling the individual surface, oven and broiler units.
Switchboard	Metal panel in front and just below the cooking top which is the backing and support of the switches.
Back Splasher	Vertical section which supports the top shelf.
Top Shelf	Horizontal shelf above the cooking surface which is supported by the back splasher.
Side Shelf	Shelf at the end of the cooking top.
Shelf Bracket	Support of the back splasher and top shelf.

Oven Brackets	Side supports of the elevated oven.
Side Splasher	Splasher at the side of the cabinet oven.
Fuse Box	Compartment which encloses the fuses.
Fuse Block	Block upon which the fuses are mounted.
Fuse	Screw or cartridge type fuse.
Legs	
Bottom Shelf	Lower shelf attached to the legs.
Pilot Light	Small lamp on range which lights when any surface, oven or broiler is turned on.
Master Switch	Large enclosed switch installed on range or kitchen wall which connects and disconnects the main-line circuit.

Insurance Requirements

National Electrical Code. The National Electrical Code is issued bi-annually by the National Board of Fire Underwriters. The rules embodied therein are the result of many years' experience and study, drawn up by a committee of the National Fire Protection Association, an organization which has the active co-operation of a large number of interested organizations. Those co-operating in matters electrical and represented by members on the committee are:

American Electric Railway Association
American Institute of Electrical Engineers
Associated Factory Mutual Fire Insurance Companies
National Association of Electrical Inspectors
National Board of Fire Underwriters
National Electric Light Association
National Electrical Contractor's Association

This code prescribes only minimum requirements allowable and it is always better to provide wider margin. Its rules permit only the use of approved fittings and material and its provisions are enforced by practically all municipal and insurance inspectors.

Underwriters' Laboratories. The Underwriters' Laboratories is an organization whose object is to secure for the user the best obtainable opinion on the merits of appliances, devices, machines and materials in respect to the life and fire hazards, and accident prevention.

Approved Electrical Fittings. The Underwriters' Laboratories have prepared complete standards for electrical fittings. All fittings which have been examined and found to comply with these standards are published by this organization in a book called "List of Approved Electrical Fittings."

Society's Range Service

Editorial Aid. In the past two years, a number of domestic science and home management books, magazine articles and advertisements have been published containing incorrect and misleading statements which did much harm to the national development of electric cookery.

This subject is a comparatively new one and many writers are not fully familiar with all the advantages of electric cookery, the construction, operation and service of the electric range, the technicalities of rates and other points which have an important bearing on electric cookery.

The Society for Electrical Development has electric range specialists on its staff who are glad to co-operate (without charge)

with writers, editors and advertising agencies on such articles, giving them the benefit of this knowledge and experience.

Rate Statistics. The Society's Statistical Department has the most complete record of cooking rates and other range data in the world. This file is corrected to date.

Merchandising Service. The Society's Merchandising Service Department is open to central station, manufacturer, jobber and contractor-dealer members. It assists them in their individual merchandising and advertising problems.

This department prepares electrical advertising copy of all kinds, layouts and complete campaigns of any size; draws designs for booths, floats and special window displays; plans store interiors; writes speeches, lectures, magazine and newspaper articles on all electrical subjects.

DO NOT say a fuse has "blown" or "burned out." Both are alarming terms and create a fear in the mind of the housewife. It is much better to say the fuse has "melted" or the fuse has simply "cut off the current."

ADDENDUM II

RELATIVE COST OF COOKING BY ELECTRICITY, GAS AND COAL

While the advantages of electric cookery lie chiefly in its convenience, cleanliness, coolness and accuracy of results, and in the reduction of the shrinkage of electrically-cooked meats, still there is an insistent demand for information as to the cost of electric cooking as compared with the use of gas and coal. Unfortunately, there are available no data, generally recognized to be accurate, on the cost of fuel cooking. It is possible, therefore, only to present the results of such tests as have already been, calling attention, whenever possible, to assumptions or data which appear to be inaccurate.

Many investigations have been made on the comparative cost of cooking by electricity, gas and coal, in the majority of the cases by professors in colleges, who, unfortunately, have conducted the tests in their laboratories, their results having little bearing on home economics.

Of course, theoretically, coal has from 11,000 to 15,000 B. t. u. per pound, artificial gas from 500 to 600 B. t. u. per cubic foot and electricity, 3,412 B. t. u. per kw.-hr., but there is a vast difference in the efficiency in the use of these various media.

One careful investigator has determined that in ordinary household cooking, only 2% of the heat value of the coal used in the kitchen range under the usual conditions, reaches the food; with gas, from 15 to 25%; with electricity, from 50 to 60%

on the open top boiling units and from 80 to 90% in the oven.

By a careful series of tests made by the engineer of one of the large gas and electric utilities, it was found that electricity at 7 cents per kw.-hr., when used in the oven, was more economical than gas at 80 cents a thousand cubic feet.

As against these figures, however, there are the tests made in the college laboratories before mentioned.

R. G. Kloeffler of the Kansas State Agricultural College of Manhattan, Kan., in a bulletin issued by the college, gives a menu schedule of meals for an entire week and shows that with:

Electricity at 3 cents per kw-hr., a consumption of 20.7 kw-hr. is required, costing per schedule per week 62 cents.

Artificial gas at $1 per 1,000 cubic feet, a consumption of 320 cubic feet is required, costing per schedule per week 32 cents.

Coal at $8 per ton, a consumption of 70.25 pounds is required, costing per schedule per week 29 cents.

Kerosene at 11 cents a gallon, a consumption of 2 gallons is required, costing per schedule per week 22 cents.

The meals were prepared for two persons only, except the Wednesday dinner which was for four persons.

Analyzing these figures, it is found that with gas, the quantity, 320 cubic feet, is considerably lower than the average amount used in the home. The rate, $1 a thousand cubic feet, is also well below the average for the country, which is now nearer $1.50.

With coal, the quantity, 70.25 pounds for a week's operation of a range, is obviously too small. It requires almost a half of this quantity to build a proper fire in the average domestic coal range, whereas, the quantity allowed is for 21 meals, or considerably less than 4 pounds per meal. Furthermore, many people

are paying nearly double the $8 per ton mentioned as the cost of coal. The price of kerosene is also practically double the 11 cent value assumed.

Comparison of Fuel and Electric Heat. E. A. Wilcox, electric heating specialist of the Great Western Power Company, in his book, on "Electric Heating," page 6, gives the following comparison of fuel and electric heat:

> "The relative heating values of fuels are often compared with electric heat. For instance, it may be shown that with coal having a heating value of 14,000 B. t. u. per pound and costing $5 per ton, manufactured gas, having a heating value of 600 B. t. u. per cubic foot and costing $1 per thousand cubic feet and electricity having a heating value of 3,412 B. t. u. per kilowatt hour and costing 1 cent per kilowatt hour, 1 cent will buy 56,000 B. t. u. of coal heat, 6,000 B. t. u. of gas heat, and 3,412 B. t. u. of electric heat. However, the fact must not be overlooked that all fuel apparatus is naturally less efficient than electric apparatus. With average efficiencies of say 10% for coal, 20% for gas, and 70% for electric apparatus, the purchasing power of 1 cent under the above assumed prices and heating values would be 5,600 B. t. u. of coal heat, 1,200 B. t. u. of gas heat, and 2,388 B. t. u. of electric heat.
>
> "The accompanying table will be of assistance in making hasty comparisons of the B. t. u. value of fuel and electric heat. Efficiencies lower than 50% are seldom, if ever, encountered in electric applications and are, therefore, omitted from the table.
>
> "Actual experience proves that many careful calculations do not work out in practice. One might assume from the above figures, for instance, that the cost of using a gas range would be at least five times as great as the cost of using a coal range. We know, however, that the average cost for cooking is less with gas than with coal, under the prices assumed.
>
> "Cost should not be the only consideration in determining the best cooking method to adopt. Improvement of product,

B. T. U. PURCHASING POWER OF ONE CENT

(From "Electric Heating" by E. A. Wilcox)

Efficiency of Apparatus	100%	75%	50%	30%	20%	10%
14,000 B. t. u. coal—						
$5.00 per ton	56,000	42,000	28,000	16,800	11,200	5,600
$10.00 per ton	28,000	21,000	14,000	8,400	5,600	2,800
600 B. t. u. gas—						
$1.00 M. cu. ft.	6,000	4,500	3,000	1,800	1,200	600
1.50 M. cu. ft.	4,500	3,375	2,250	1,350	900	450
Electricity—						
1 cent per kw.-hr.	3,412	2,559	1,706	....	....	....
2 cents per kw.-hr.	1,706	1,279	853	....	....	....
3 cents per kw.-hr.	1,137	853	568	....	....	....
5 cents per kw.-hr.	682	512	341	....	....	....

elimination of waste, increased safety, saving of labor and skill, greater comfort and cleanliness, possibility of performing new and otherwise impossible operations, are all essential economic advantages that accrue to the user of electric heat."

It will be noted that the lowest efficiency in the table for coal, is 10%, whereas this figure is seldom reached in household operation.

With a coal range fire held over night, cooking is only in operation a small part of the time, and heat is wasted during the major part of the 24 hours. If, on the other hand, a new fire is kindled each time, much labor is involved, and there is considerable expense represented in the cost of the kindling wood used.

Maud Lancaster, in her book, "Electric Cooking, Heating and Cleaning," quotes experiments by Dr. L. Wm. Pavey. These show meat losses averaging 31% by coal or gas and for roasted meat 34% and shows losses in several cases of only 8% with electricity, but she states also:

"It is, of course, understood that this higher efficiency in cooking of meats is obtainable more from the fact that the meat is cooked slowly in its own juice, and in a uniform temperature, without the juices being carried off, as they are with the present coal and gas cooker, than from the class of fuel supplying the heat. I have already pointed out that Count Rumford, over 100 years ago, obtained almost the same high efficiencies with a specially constructed coal fire cooker, but the expensive construction prevented its commercial adoption, although it was the pioneer of the coal fire range.

"When using an electric oven, the housewife or cook knows for certain that a movement of one or more switches, will once and always produce a certain temperature, and so long as these switches are in a given position, so long will the temperature be maintained. With gas or coal cooking, there can be no such sure and certain knowledge. It is difficult to adjust the gas valves twice alike, and even if this could be done, the gas pressure may change at any moment, or the internal oven temperature may be affected by draughts or by several other causes. So far as coal is concerned, the cook is at the mercy of the fire to a great extent, since the oven cannot respond quickly to changes in the control of dampers and to poking of the fire or addition of fuel. The coal oven is always an uncertain quantity. One day it will cook satisfactorily, the next it will be too slow. There is no nonsense of this kind with the electric oven, which is always alike, always ready, and never fails to do its work with economy, cleanliness and freedom from supervision."

There is no question but that in the common practice in the household, electric cooking gives more even and satisfactory results, much food being saved in this way because the heat is under better control.

When the afore-mentioned points are taken into consideration, and when to them are added the advantages of greater convenience, and cleanliness, with many other arguments in favor

of electric cooking, the advantages of the electric range cooking in the household far exceed those of any other method of cooking and would justify paying a higher price, if necessary.

Brown's Directory of Gas Companies for 1920 shows only 2,468 communities in this country served with artificial gas and 1,515 in addition with natural gas, giving a total of 3,983; whereas, the McGraw Central Station list, gives over 13,700 communities, large and small, where electric service is available, and the records of the Society for Electrical Development show that in over 6,000 of these communities rates of 5 cents or less, are given for electric cooking. The major part of them being 4 cents or lower.

Several research investigators have recently reported that in ordinary domestic use, only about 2% of the heat value of the coal goes into the food on the coal range. One investigator reported 2%, others from 1½% to 3%.

Experiments conducted at a "Practice Cottage," at the Washington State College, where cooking of three meals a day over a period of a number of weeks was carried on, indicate that the cost per week of cooking with coal, wood and electricity are:

With coal at $11 per ton, 88.5 cents per week; with wood (fir) at $11 a cord, 89 cents per week; with electricity at 3.85 cents per kilowatt-hour, 86.5 cents per week.

The following comparisons of various fuels in domestic cooking are also interesting:

	Heat Units for 1 cent	*Range Efficiency Percentage*	*Useful Heating Units*
Coal at $15 per ton	17,333	2	347
Artificial Gas at $1.50 M.	3,667	15 to 25	550–916
Electricity at 3.4¢ per kw.-hr.	1,000	60 to 80	600–800

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Notes

The fourth column of figures is a Ratio be
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pany — NOT a percentage!

The fourteenth column of figures is the Effec
A range consumption of 125 kw-hrs per mon
in calculating the block- and step-rates. For
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appliance consumption

Definitions

Demand: (Technically, Demand Factor) The
ratio of the max imum of any system or part of
a system, to the total connected load of the
system, or of the part of system under con-
sideration.

Diversity Factor: The ratio of the sum of the
maximum power demands of the sub-divisions

Electric Range Data from 100 Central Stations, 1921

Compiled, copyrighted and distributed by The Society for Electrical Development, Inc.

FUNDAMENTAL FACTS

Range Situation Today

Actual Conditions. This compilation presents an authentic analysis of the actual operating conditions of *typical* electric range loads as they exist today throughout the United States.

This data was secured from 100 large and small representative central stations which have shown unusual interest and activity in electric range merchandising. Their combined statistics make a most complete and significant record of electric range progress.

Notes

The fourth column of figures is a Ratio between residences wired and total population reached by the company— *NOT a percentage!*

The fourteenth column of figures is the Effective Rate. A range consumption of 125 kw-hrs per month is used in calculating the block- and step-rates. For the combined rate, 25 kw-hrs are used as the lighting and appliance consumption.

Definitions

Demand: (Technically, *Demand Factor*). The ratio of the maximum of any system or part or a system, to the total connected load of the system, or of the part of system under consideration.

Diversity Factor: The ratio of the sum of the maximum power demands of the sub-divisions of any system or parts of a system to the maximum demand of the whole system or part of the system under consideration, measured at the point of supply.

Connected Load: The combined maximum rating of all units of range, connected to the system or part o the system under consideration.

SERVICE
THE SOCIETY
FOR THE
ELECTRIC
DEVELOPMENT
OF THE U.S.A.
"DO IT ELECTRICALLY"

CITY	COMPANY	Communities Served	Population Reached by Company	Residence Customers	Ratio	Total Meters	Total Range	Kw. Load	Kw. Range	Installation: Average Connected Load	Installation: Kw. Per Range Connected	Installation: Diversity Factor	Installation: Cost to Con. incl. Station Equip. & Line Extension	Installation: plant equip.	Customer Cost per Range	Rate, Cents (Effective)	± Sec. Rate ± Cons. Rate = Net Ch.	Class Rate Class 2 + Net Ch.
Albany, Ore.	Mountain States Power Co.	7	9,575	2,443	25.5	2,905	129	834	6.5		1,500	20%	$80.00		$30.00	3.1	s	82.25
Akron, Ohio	No. Ohio Traction & Lt. Co.	14	285,000	28,800	10.	35,000	1,200	6,000	5.	2.25	1,800	33%	47.00		38.00	3.56	c	.45*
Albuquerque, N. M.	Albuq. Gen. Elec. Lt. & Pwr.Co	1	22,000	3,000	13.6	3,717	100	500	5.	2.	800				10.00	5.	s	2.00
Anaconda, Mont.	Anaconda Copper Mining Co.	2	12,400	2,417	20.	2,507	161	490	4.9		1,377					3.	s	†
Atlantic City, N. J.	Atlantic City Elec. Co.	8	80,000	8,200	10.25	9,300	100	530	5.3	2.6	1,193	30%				3.72	s	1.60
Asheville, N. C.	Ashville Power & Light Co.	3	30,000	4,694	15.6	5,510	205	1,116	5.4	2.5	3,480	33%	35.00		27.50	3.15	s	1.50
Baker, Oregon	Eastern Oregon Lt. & Pwr. Co.	18	20,000	3,000	15.	4,500	85	425	5.	1.5						3.	s	2.00
Bay City, Mich.	Municipal Plant	1	50,000	6,500	13.	7,400	181	910	5.	1.5	1,680		160.00		80.00	3.6	c	1.65
Bellingham, Wash.	Pac. N. W. Trac. Co. (Skgt. Co.)	12	14,075	2,240	16.	2,949	200	1,000	5.	3.		33%	50 to 100		40.00	3.	s	1.65
Biamark, N. D.	Hughes Elec. Co.	1	8,500			2,200	300									3.5	s	2.80
Bluefield, W. Va.	Appalachian Power Co.	11	41,650	5,132	12.3	6,463	106	572	5.4		1,670		60 to 100		10 to 30	3.	s	1.35
Boise, Idaho	Idaho Power Co.	57	116,288	21,513	18.5	32,770	3,778	18,258	4.9	1.2	1,500	25%	70.00		30.00	3.2	s	2.25
Boston, Mass.	Edison Elec. Ill. Co. of Boston	38	1,212,582	76,354	6.3	123,202	2,000				4,000						s	1.35
Buffalo, N. Y.	Buffalo General Elec. Co.	5	525,000	60,000	11.4	82,000	1,300	7,800	6.	4.	2,200	17%	155.00		30 to 50	2.	c	1.45
Butte, Mont.	Mont.Pwr.Co.,as. Lewiston Div.	53	142,800	27,860	19.5	31,200	2,015	9,680	4.8	2.7	1,500	Good			25.00	3.	s	1.75
Canton, Ohio	Ohio Power Company	5	92,000	12,792	13.8	16,191	110	704	6.4	2.5	1,982		70.00		80 to 100	4.28	s	.45*
Charlottesville, Va.	Charlottesville & Alhe. Ry. Co.	1	13,000	2,200	17.	2,225	125	435	3.5	1.5	2,400	Good	42.00			3.	s	1.50
Chicago, Ill.	Commonwealth Edison Co.	1	3,000,000	418,673	13.9	447,307	100	500	5.	2.5	1,980	50%	70.00		40.00	5.	s	1.25
Chicago, Ill.	Off. only. P.S. Co. of No. Ill.	200	800,000	83,854	10.48	102,774	349	2,488	7.	4.	1,533		80.00		30.00	3.64	s	1.35-1.45
Cincinnati, Ohio	Union Gas & Elec. Co.	5	400,000	35,946	9.	44,652	100	500	5.		1,600		90 to 200		50 to 110	3.5	s	.35*
Dallas, Texas	Texas Pwr. & Lt. Co.	104	390,700	40,004	10.25	50,709	2,014	14,098	7.	1.	1,440	5%	80.00		25.00	3.	s-c	110 & 110
Dayton, Ohio	Dayton Pwr. & Lt. Co.	53	250,000	31,900	12.76	42,111	100	550	5.5	3.	1,500		150 to 200		60 to 90	6.	s	.50*
Deadwood, S. C.	Consolidated Pwr. & Lt. Co.	10	13,000	3,017	23.2	3,776	286			2.5	1,585	40%	49.20			3.76	s	2.25
Detroit, Mich.	Detroit Edison Co. (Sub. only)	51	199,700	26,928	13.5	37,261	1,562	7,810	5.		1,610					2.7	s	.85
Dixon, Ill.	Illinois No. Utilities Co.	66	93,861	23,792	25.3	24,000	518	3,000	5.8	2.5	1,400	Good	25.00		25.00	2.75	s	1.30 up
Duluth, Minn.	Duluth Edison Elec. Co.	1	100,000	18,200	18.2	24,126	425	2,810	6.	3.9	1,240	10.5%	90.00		35.00	2.4	s	.75
Eau Claire, Wis.	Wisc.-Minn. Light & Pwr. Co.	16	142,140	16,200	11.4	21,555	136	723	5.3		1,486		60.97		25.63	4.	s	2.00-2.30
El. Centro, Calif.	Holton Power Co. (Div. H. Q.)	9	17,000	4,000	23.4	5,200	242	1,455	6.	3.	3,200	40%	100.00		50.00	5.	s-c	
Erie, Pa.	Erie Lighting Co. (Both Co.'s)	1	113,000	20,000	17.7	28,000	180	1,260	7.		1,500				40.00	5.	s	.65*
Ft. Wayne, Ind.	Ft. Wayne & N. Ind. Service Co	15	95,000	9,140	10.4	13,061	225	1,575	7.	3.3	2,300	30%	30.00		15.00	3.5	s	1.25
Fresno, Calif.	San Joaquin Lt. & Pwr. Co.	79	200,000	23,000	11.5	34,000	120	720	6.	3.5	4,000	30%	225.00		90.00	4.2	c	1.37
Franklin, Mass.	Union Lt. & Pwr. Co.	5	36,000	2,018	5.6	2,409	102	675	6.6	3.	1,360		60.00		35.00	3.8	s	2.10
Gardner, Mass.	Gardner Elec. Light Co.	6	26,500	3,000	11.3	4,063	80	500	6.2	3.	1,200	20%	85.00		35.00	3.6	s	2.50
Grand Island, Nebr.	Munic. Plant	1	14,000	3,000	21.4		125								20.00	4.5	s	†
Greenwich, Conn.	Conn. Light & Pwr. Co.	6	22,000	3,429	15.57	4,185	300	2,700	9.	3.	1,250				50.00	7.6		1.75
Greenwood, Miss.	Munic. Plant	2	10,000	800	8.	2,000	100	700	7.	1.	2,685	15-20%	125.00		40.00	4.	s-c	
Hartford, Conn.	Hartford Elec. Lt. Co.	13	135,036	30,000	21.7	32,778	223	1,152	5.1	2.	1,000	33%	16.00		50.50	4.	s	1.27
Hutchinson, Kansas	United W. G. & Elec. Co.	4	32,000	3,349	10.4	3,349	350	2,000	5.7	1.2	1,775		12.00		15.00	3.6-3.5	s	3.0-3*
Indianapolis, Ind.	Indiana Light & Heat Co.	12	350,000	50,000	14.25	53,000	400	1,500	3.5	2.	1,200	13%	150.00		30 to 40	4.	c	.60
Indianapolis, Ind.	Merchants Heat & Light Co.	1	300,000	10,000	3.3	11,000	133	520	4.		1,200	13%	35.00		25.00	3.16	c	.60
Kalispell, Mont.	No. Id. Mont. Pwr. Co.	3	7,000			1,500	200	1,200	6.	3.	1,500		25.00		40.00	2.25	s	†
Lake City, Minn.	Munic. Plant	1	4,000	780	19.25	1,200	154	1,000	6.5			Good	90.00		40.00	3.	s	†
Lake Geneva, Wisc.	S. Wisc. Elec. Co.	9	17,000	2,500	14.7	3,500	300	1,500	5.	1.5			100.00		40.00	3.1	s	†
Lewiston, Mont.	Montana Pwr. Co.	6	10,000	1,344	13.4	2,224	323	1,615	5.		1,596				35.00	3.	s	†
London, Ont.	Public Utility Com.	1	61,000	12,376	20.2	14,128	700	4,200	6.	2.	5,000	Cost of peak			55.00	1.	c	1.50-1.00
Longmont, Colo.	City Elec. Dept.	2	7,000	1,400	20.	1,761	72	350	5.	2.	2,401	25%				3. & 2.	c	†
Los Angeles, Calif.	Southern Calif. Edison Co.	103	1,250,000	144,000	11.5	175,000	2,920	14,600	5.	.62	1,450	12%	17.90		15.00	3.5	c	.68 & 1.25
Louisville, Ky.	Ky. Utilities Co. (Office only)	37	90,000	16,696	18.55	18,926	131	683	5.2		1,200	Ver. High	150.00		25.00	4.	s	1.50 & 1.65
Louisville, Ky.	Louisville Gas & Elec. Co.	18	341,000	40,359	11.8	42,123	200	1,000	5.	3.	1,500	50%	150.00		90.00	3.	c	.55*
Malden, Mass.	Malden Elec. Co.	4	150,000	16,000	10.7	17,000	100	500	5.		1,800				35.00	5.	s	1.50
Manitowoc, Wisc.	Munic. Plant	1	21,000	3,400	16.	4,211	85	453	5.2	1.2	1,500		25.00		25.00	3.	c	1.50
Medford, Oregon.	Calif. Ore. P. C. Rogue Rivr. Div.	16	20,088	3,210	16.	4,248	500	2,500	5.	3.	1,800	Good	100 to 130		50 to 60	2.4	c	2.00
Miami, Florida	Miami Elec. Lt. & Pwr. Co.	5	40,000	8,200	20.5	8,340	324	2,000	6.1	2.	2,500	25%	30.00 without transf.		40.00	4.3	s	1.90
Miles City, Mont.	Munic. Plant	2	9,000	1,500	16.66	2,110	109	400	3.9	1.37	1,050		75.00		30.00	4.	s	†
Milwaukee, Wisc.	Milwaukee Elec. Ry. & Lt. Co.	24	450,000	31,300	7.	44,586	800	4,800	6.	4.	1,400	10%	63.00		40.00	2.3	c	.75
Minneapolis, Minn.	Minneapolis G. E. Co.	35	450,000	59,000	13.1	68,000	2,000	10,000	5.	3.	1,200				30.00	3.8	c	1.15
Missouls, Mont.	Missoula Lt. & W.Co.(City Only)	7	16,000	4,100	25.6	5,286	115	675	5.8		1,200	10%			40. to 50.	2.9	c	1.75
Niagara Falls, N. Y.	Niagara Elec. Service Corp.	4	50,000	10,000	20.	9,500	100	700	7.	1.25	1,900				60.00	3.	s	1.75
Olympia, Wash.	Olympia Lt. & Pwr. Co.	1	15,000	2,000	13.3	2,500	75	375	5.	2.5	1,500		115.00		45.00	3.	s	1.50
Omaha, Nebr.	Nebraska Pwr. Co.	6	195,000	34,893	18.	38,207	125	750	6.	3.5	1,800		150.00		90.00	3.	s	1.15
Paston, Ill.	Central Ill. Utilities Co.	27	25,000	5,330	21.3	6,330	108	568	5.2	2.						3.2	s	1.35
Poplar Bluff, Mo.	Missouri Public Utilities Co.	1	17,000	1,200	7.1	1,800	100	350	3.5		1,200	V. Good	100.00		5.00	3.	s	†
Port Clinton, Ohio	Port Clinton Elec. Lt. Co.	1	4,000	800	20.	1,082	100	400	4.	2.5	1,500	33%	20.00		20.00	5.	s	†
Portland, Oregon	Northwestern Elec. Co.	3	120,000	9,300	7.75	15,600	392	2,163	5.5		1,500	17%	175.00		60.00	2.3	c	1.00
Portland, Oregon	Pacific Power & Light Co.	55	131,600	20,893	15.8	29,981	550	2,750	5.	2.	1,000	10%-20%	125.00		20.00	3.6	s	.95
Portland, Oregon.	Portland Ry. Lt. & Pwr. Co.	14	300,000	42,080	14.		800	4,960	6.2		1,400	10%	50.00		40.00	3.	c	.95
Portsmouth, N. H.	Rockingham Co. Lt. & Pwr. Co.	12	40,000	3,000	7.5	4,600	100									2.62	s	1.45
Providence, R. I.	Narragansett Elec. Ltg. Co.	16	300,000	35,526	11.85	37,734	56	361	7.		2,500	Large				3.1	s	1.42
Raleigh, N. C.	Carolina Pwr. & Light Co.	9	73,000	7,500	10.3	8,500	165	825	5.	2.	1,500					3.	s	1.40
Reading, Mass.	Municipal Light Dept.	4	12,000			2,617	134	603	4.5		900	50%	35.00		65.00	2.7	s	1.50
Red Oak, Iowa	Red Oak Elec. Co.	16	17,358	4,000	22.8	5,280	194	800	4.12	1.5	1,200		50.00		25.00	4.6	s	1.63
Richmond, Mo.	Gas & Elec.Ser. Co., Rich. Div.	12	40,000	1,577	20.5	1,727	80	476	5.9	3.			40.00		20.00	3.1	s	1.25
Riverside, Calif.	S. Sierra Pwr. Co. (Calif. Div.)	20	60,000	4,363	7.27	4,581	218	1,300	6.	2.5	2,400	50%	135.00		35.00	3.24	c	Varies
Rockford, Ill.	Rockford Elec. Co.	1	70,000	10,925	15.6	12,850	209	1,140	5.4	2.	1,800	10%	150.00		80.00	3.15	c	1.25
St. George, Utah	Dixie Pwr. Co.	12	12,800	1,270	10.	1,315	104	950	9.	4.	5,600	75%			30.00	3.	s	†
St. Louis, Mo.	Un'n Elec. Lt & Pwr. Co. (See Webster Groves)	1	1,000,000	91,000	9.1	126,000	1,700	9,900	5.2		1,344				At cost	2.25	c	.60
Salt Lake City, Utah	Utah Power & Light Co.	157	351,670	55,326	15.7	70,076	3,236				1,000					2.7	s	1.10 & 1.65
San Diego, Calif.	San Diego Cons. Gas. & Elec.Co.	42	100,300	24,811	24.8	26,255	195	1,326	6.8	3.	2,100	Good	140.00		25.00	3.5	s	1.12
San Francisco, Calif.	Calif. Oregon Pwr. Co. (Office)	3	42,500	5,400	12.1		226	953	4.4	2.46			81.57		75.00	2.25	c	.85 and up
San Francisco, Calif.	Great. Western Pwr. Co. (Office)	35	1,250,000	15,000	1.2	30,000	700	3,500	5.	3.	1,440	10%	150.00		75.00	3.5	s	1.00-2.00
San Francisco, Calif.	Pacific Gas & Elec. Co.	106	1,362,621	200,000	14.7	274,860	1,350	5,000	6.	3.	1,995		100.00		60.00	3.5	s & c	1.05
San Francisco, Calif.	S'rn. & San Fr. Pwr. Co. (Off.)	21	25,000	3,920	17.3	6,996	151	986	6.5		1,685		150.00			2.7	c	1.65
Santa Barbara, Calif.	Santa Barbara Gas & Elec. Co.	6	25,000	6,000	17.1	7,300	153	1,540	10.			Good			25.00	4.	c	City 1.40 Count. .85*
Scranton, Pa.	Scranton Elec. Co.	24	250,000	30,000	12.	35,000	100	600	6.	2.	1,200				Free	3.72	s	1.70
Seattle, Wash.	Munic. Light Plant	1	(315,000)	56,990	18.	62,216	1,400	5,400	6.	3.	1,920	30%	36.80 net incl. transf.		35.00	3.	c	1.43
Seattle, Wash.	Puget. Sd. Trac. Lt. & Pwr. Co.	72	375,000	22,000	6.	600		3,240	5.4		1,700	22½%	75.00		45.00	3.	s-c	1.45
Spokane, Wash.	Wash. Wtr. Pwr. Co.	51	212,177	31,200	14.7	37,645	3,147	20,455	6.5	2.	1,500		60.00		46.00	3.	s	1.67
Springfield, Ill.	Central Ill. P. S. Co. (Off. Only)	170	300,000			68,856	2,614	13,700	5.	2.		Y. Good	55.00		23.00	3.8	s	1.70
Sterling, Colo.	Colorado Power Co.	1	8,000	1,486	16.80	1,486	200	1,000	5.	2.	1,050				25.00	6.	c	†
Stockton Div. Cal.	West. States Gas & Elec. Co.	17	50,500	11,000	21.7	14,000	140	840	6.		3,780	50%	200.00		75.00	3.	s	1.10
Tacoma, Wash.	Municipal Plant	1	100,000	20,000	20.	23,341	1,250	8,000	6.4	2.	2,500	20%	50.00		40.00	3.	c	1.50
Wahpeton, N. D.	Otter Tail Power Co.	1	3,300	660	10.1	715	125	575	4.6	1.6	1,900	8%	21.00			2.5	s	†
Washington, D. C.	Potomac Elec. Pwr. Co.	14	456,200	28,883	6.3	48,122	441	2,646	6.		1,208				50.00	4.	s	1.32
Webster Groves, Mo.	Un'n. Elec. Lt. & Pwr. Co. St. Louis Co. Div.	98	100,737	11,454	11.	13,149	634	4,192	6.4		1,728		5.01 inside		20.00	3.5	c	1.40
Waterville, Me.	Central Maine Power Co.	42	40,000	3,500	8.7	3,700	164	900	3.65	2.5	1,208		10.00		12.00	3.	s	1.80
White Br. Lake, Minn.	No. States Power Co.	5	5,000	1,090	21.8	1,352	194	1,100	5.6		1,500					4.	s	
Wichita, Kansas	Kansas Gas & Elec. Co.	29	160,566	26,496	16.5	32,313	500	2,500	5.	1.5	1,200				40.00	3.	s-c	.75& .58*
Williston, N. D.	Municipal Elec. Lt. Plant	1	5,000	1,100	22.	1,704	96	450	4.6		2,200	Good	15.00		40.00	4.	s	†
Wilmington, Del.	Wilmington & Phila. Trac. Co.	31	175,000	10,000	5.7	12,000	200	720	3.6	2.		16.6%	12.06		15. to 20.	3.	s	1.05
Youngstown, O.	Penn.-Ohio Elec. Co.	15	200,000	27,000	13.5		130	780	6.		1,900		100.00		75.00	3.7	s	.35*
	Totals	2,424	20,141,650	2,352,864		2,862,881	52,476	259,129			1,540							65 s @ 4.ar. 1.50
	Average			96 Rep'tg.	11.9	(95Rep't'g)			5.56	2.4						3.42	5 s-c @N.av.50	30 c

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Ft. Wayne, Ind.	Ft. Wayne & N. Ind. Service Co.	15
Fresno, Calif.	San Joaquin L. & Pwr. Co.	71
Franklin, Mass.	Union Lt. & Pwr. Co.	3
Gardner, Mass.	Gardner Elec. Light Co.	6
Grand Island, Nebr.	Municipal Plant	1
Greenwich, Conn.	Conn. Light & Pwr. Co.	6
Greenwood, Miss.	Municipal Plant	2
Hartford, Conn.	Hartford Elec. Lt. Co.	13
Hutchinson, Kans.	United W. G. & Elec. Co.	4
Indianapolis, Ind.	Indiana Light & Heat Co.	12
Indianapolis, Ind.	Merchants Heat & Light Co.	1
Kalispell, Mont.	No. Id. Mont. Pwr. Co.	3
Lake City, Minn.	Municipal Plant	1
Lake Geneva, Wisc.	S. Wisc. Elec. Co.	3
Lewiston, Mont.	Montana Pwr. Co.	6
London, Ont.	Public Utility Com.	1
Longmont, Colo.	City Elec. Dept.	2
Los Angeles, Calif.	Southern Calif. Edison Co.	103
Louisville, Ky.	Ky. Utilities Co. (Office only	37
Louisville, Ky.	Louisville Gas & Elec. Co.	18
Malden, Mass.	Malden Elec. Co.	4
Manitowoc, Wisc.	Municipal Plant	1
Medford, Oregon	Calif.-Ore. P. C. Rogue River. Div.	16
Miami, Florida	Miami Elec. Lt. & Pwr. Co	5
Milaca City, Mont.	Municipal Plant	2
Milwaukee, Wisc.	Milwaukee Elec. Ry. & Lt. Co.	24
Minneapolis, Minn.	Minneapolis G. E. Co.	35
Missoula, Mont.	Missoula Lt. & W. Co. (City Only)	1
Niagara Falls, N. Y.	Niagara Elec. Service Corp.	4
Olympia, Wash.	Olympia Lt. & Pwr. Co.	1
Omaha, Nebr.	Nebraska Pwr. Co.	6
Paxton, Ill.	Central Ill. Utilities Co.	27
Poplar Bluff, Mo.	Missouri Public Utilities Co.	1
Port Clinton, O.	Port Clinton Elec. Lt. Co.	1
Portland, Oregon	Northwestern Elec. Co.	3
Portland, Oregon	Pacific Power & Light Co.	55
Portland, Oregon	Portland Ry. Lt. & Pwr. Co.	14
Portsmouth, N. H.	Rockingham Co. Lt. & Pwr. Co.	12
Providence, R. I.	Narragansett Elec. Lig. Co.	11
Raleigh, N. C.	Carolina Pwr. & Light Co.	7
Reading, Mass.	Municipal Light Dept.	4
Red Oak, Iowa	Red Oak Elec. Co.	1
Richmond, Va.	Gas & Elec.Ser. Co., Rich. Div.	12

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